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ABSTRACT

This resource guide for the use of job aids ("how-to-do-it" guidance) for activities identified in the second phase of the Instructional Systems Development Model (ISD) contains an introduction to the use of job aids, as well as descriptive authoring flowcharts for Blocks II.1 through II.4. The introduction includes definitions; descriptions of classification systems and flowchart symbols; instructions for using the Job Aid Manual; a description of the Job Aids Resource Manual; an explanation of the reporting system; information on the use of field surveys and panels; and an example of a closed form questionnaire together with the procedures for its administration. A flowchart is provided for each of the four activities in Phase II--DESIGN: (1) development of objectives, (2) development of tests, (3) description of entry behavior, and (4) determination of sequence and structure. (LLS)

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JOB AIDS: DESCRIPTIVE AUTHORING FLOWCHARTS FOR PHASE II-DESIGN OF THE INSTRUCTIONAL SYSTEMS DEVELOPMENT MODEL

MANPOWER AND EDUCATIONAL SYSTEMS TECHNICAL AREA

MAY 1980

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U.S. ARMY RESEARCH INSTITUTE for the BEHAVIORAL and SOCIAL SCIENCES

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A Field Operating Agency under the Jurisdiction of the Deputy Chief of Staff for Personnel

JOSEPH ZEIDNER
Technical Director

FRANKLIN A. HART
Colonel, US Army
Commander

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The Computer-Based Instructional Systems Team of the US Army Research Institute for the Behavioral and Social Sciences performs research and development in the area of educational technology that applies to military training. Of interest are methods for training individuals to develop and utilize instructional courseware in reasonable time, at acceptable cost. ARI research in this area is conducted under Army Project 2Q263743A794, FY 80 Work Program.

This Research Product is one of a series of 10 volumes designed to provide guidance on the application of the Instructional Systems Development model. The work was accomplished by Mr. Russel E. Schulz and Mrs. Jean R. Farrell, Human Resources Research Organization, Contract No. DAHC19-78-C-0010 and personnel of the ARI Manpower and Educational Systems Technical Area. Personnel from the Directorates of Training Development at Ft. Belvoir, VA and Ft. Gordon, GA provided assistance in the evaluation of the work.

JOSEPH ZEIDNER
Technical Director

JOB AIDS: DESCRIPTIVE AUTHORING FLOWCHARTS FOR PHASE II-DESIGN OF THE INSTRUCTIONAL SYSTEMS DEVELOPMENT MODEL

BRIEF

Requirement:

To develop a series of job aids for the activities identified in the Instructional Systems Development Model (ISD, TRADOC Pamphlet 350-30).

Procedure:

A series of job aids were designed and developed for each of the five phases of the ISD model: ANALYZE, DESIGN, DEVELOP, IMPLEMENT, and CONTROL. Each job aid is comprised of Descriptive Authoring Flowcharts and a Job Aid Manual which provide specific guidance, examples, and references necessary to produce the product specified by the ISD Block it covers.

Utilization:

These job aids will be used by military training personnel in meeting the requirements of the ISD model.

JOB AIDS: DESCRIPTIVE AUTHORING FLOWCHARTS FOR PHASE II-DESIGN OF THE INSTRUCTIONAL SYSTEMS DEVELOPMENT MODEL

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WHAT ARE JOB AIDS?

- Job Aids are intended to be stand-alone, step-by-step procedural guides which we hope will permit you to turn out quality instructional products quickly and easily. We also hope that they will be equally useful to individuals at all experience levels of the instructional systems development process.

- Job Aids are intended to address real needs. Prior to the development of the Job Aids, instructional technology personnel (individuals like yourself) at the U.S. Army Signal Center and the U.S. Army Engineer School were surveyed to determine specific ISD needs—those areas in which they had the greatest need for assistance and information. Emphasis was placed on satisfying these needs in the development of the Job Aids.

- Job Aids use the same classification system for identifying the activities that must be performed in instructional systems development (ISD) as does TRADOC Pamphlet 350-30 (Interservice Procedures for Instructional Systems Development).

WHAT IS THE CLASSIFICATION SYSTEM USED IN TRADOC PAMPHLET 350-30 AND JOB AIDS?

- TRADOC Pamphlet 350-30 suggests that instructional systems development be conducted in five phases:
  - Analyze
  - Design
  - Develop
  - Implement
  - Control

- For those of you who are unfamiliar with TRADOC Pamphlet 350-30 we suggest you read the brief description of each phase of the ISD process as shown in Table 1. In the TRADOC Pamphlet each ISD phase is divided into specific activities called ISD blocks. Table 2 shows these ISD blocks and Table 3 shows the outcome of each block.

- Job Aids cover the activities required for the first three phases of the TRADOC Pamphlet (i.e., Analyze, Design, and Develop instructional systems). The Aids cover each ISD block within these phases except for ISD Block I.1, Analyze Job.

Table 1

FIVE PHASES OF INSTRUCTIONAL SYSTEMS DEVELOPMENT (ISD)

THE FIVE PHASES ARE:

PHASE I
ANALYZE

Inputs, processes, and outputs in Phase I are all based on job information. An inventory of job tasks is compiled and divided into two groups: tasks not selected for instruction and tasks selected for instruction. Performance standards for tasks selected for instruction are determined by interview or observation at job sites and verified by subject matter experts. The analysis of existing course documentation is done to determine if all or portions of the analysis phase and other phases have already been done by someone else following the ISD guidelines. As a final analysis phase step, the list of tasks selected for instruction is analyzed for the most suitable instructional setting for each task.

PHASE II
DESIGN

Beginning with Phase II, the ISD model is concerned with designing instruction using the job analysis information from Phase I. The first step is the conversion of each task selected for training into a terminal learning objective. Each terminal learning objective is then analyzed to determine learning objectives and learning steps necessary for mastery of the terminal learning objective. Tests are designed to match the learning objectives. A sample of students is tested to insure that their entry behaviors match the level of learning analysis. Finally, a sequence of instruction is designed for the learning objectives.

PHASE III
DEVELOP

The instructional development phase begins with the classification of learning objectives by learning category so as to identify learning guidelines necessary for optimum learning to take place. Determining how instruction is to be packaged and presented to the student is accomplished through a media selection process which takes into account such factors as learning category and guideline, media characteristics, training setting criteria, and costs. Instructional management plans are developed to allocate and manage all resources for conducting instruction. Instructional materials are selected or developed and tried out. When materials have been validated on the basis of empirical data obtained from groups of typical students, the course is ready for implementation.

PHASE IV
IMPLEMENT

Staff training is required for the implementation of the instructional management plan and the instruction. Some key personnel must be trained to be managers in the specified management plan. The instructional staff must be trained to conduct the instruction and collect evaluative data on all of the instructional components. At the completion of each instructional cycle, management staff should be able to use the collected information to improve the instructional system.

PHASE V
CONTROL

Evaluation and revision of instruction are carried out by personnel who preferably are neither the instructional designers nor the managers of the course under study. The first activity (internal evaluation) is the analysis of learner performance in the course to determine instances of deficient or irrelevant instruction. The evaluation team then suggests solutions for the problems. In the external evaluation, personnel assess job task performance on the job to determine the actual performance of course graduates and other job incumbents. All collected data, internal and external, can be used as quality control on instruction and as input to any phase of the system for revision.

Table 2

ISD BLOCKS IN EACH OF THE FIVE ISD PHASES

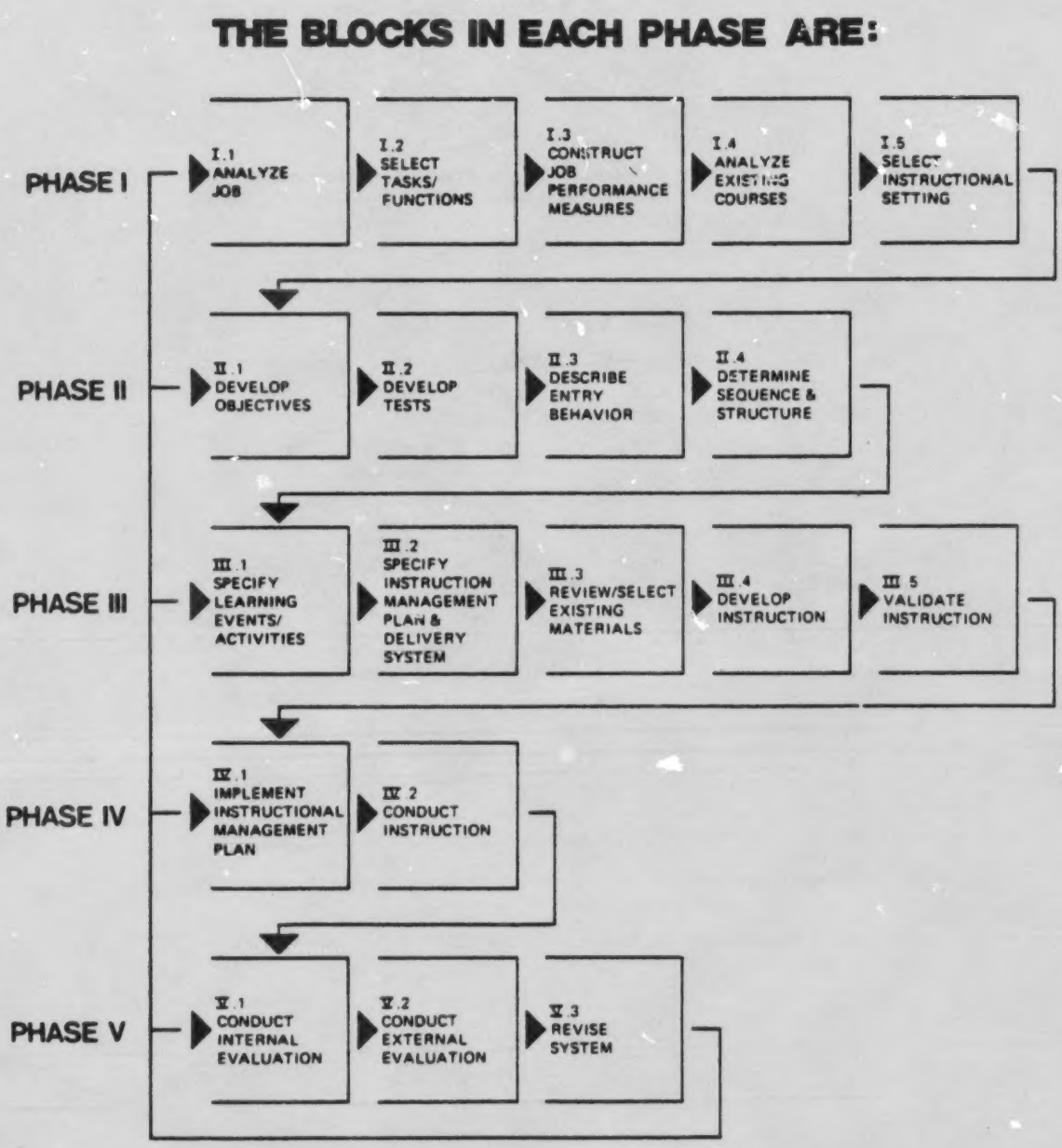


Table 3

OUTCOMES OF ISD BLOCKS

THE OUTCOMES OF THE BLOCKS ARE:

I

- .1 . . . a list of tasks performed in a particular job.
- .2 . . . a list of tasks selected for training.
- .3 . . . a job performance measure for each task selected for instruction.
- .4 . . . an analysis of the job analysis, task selection, and performance measure construction for any existing instruction to determine if these courses are usable in whole or in part.
- .5 . . . selection of the instructional setting for task selected for instruction.

II

- .1 . . . a learning objective for and a learning analysis of each task selected for instruction.
- .2 . . . test items to measure each learning objective.
- .3 . . . a test of entry behaviors to see if the original assumptions were correct.
- .4 . . . the sequencing of all dependent tasks.

III

- .1 . . . the classification of learning objectives by learning category and the identification of appropriate learning guidelines.
- .2 . . . the media selections for instructional development and the instructional management plan for conducting the instruction.
- .3 . . . the analysis of packages of any existing instruction that meets the given learning objectives.
- .4 . . . the development of instruction for all learning objectives where existing materials are not available.
- .5 . . . field tested and revised instructional materials.

IV

- .1 . . . documents containing information on time, space, student and instructional resources, and staff trained to conduct the instruction.
- .2 . . . a completed cycle of instruction with information needed to improve it for the succeeding cycle.

V

- .1 . . . data on instructional effectiveness.
- .2 . . . data on job performance in the field.
- .3 . . . instructional system revised on basis of empirical data.

WHAT SOURCES OF INFORMATION WERE USED IN THE DEVELOPMENT OF JOB AIDS?

- Job Aids are not just a re-hash of TRADOC Pamphlet 350-30. We use the same classification system for ISD phases and the blocks within the phases as does the TRADOC Pamphlet. However, the guidance and information provided in the Job Aids come from a variety of sources, the TRADOC Pamphlet being only one such source. We have gathered information from any source that we could locate. If the information was judged to be good it was included in the Job Aids. In some instances the information in the Job Aid is based solely on the educational technology experience of the project staff.

- It is not within the scope of this Introduction to list all sources of information examined or used in the development of the Job Aids. However, in addition to TRADOC Pamphlet 350-30 examples of other sources of information would include the following types:

  - TRADOC Circulars
  - DA Pamphlets
  - Printed Guidance prepared by TRADOC Schools (e.g., U.S. Army Signal Center)
  - Army Research Institute Documents
  - HumRRO publications
  - Other military and civilian agencies

WHAT JOB AIDS ARE PRESENTLY AVAILABLE AND WHAT DO THEY CONSIST OF?

- There are thirteen Job Aids presently available. Each Job Aid is comprised of two documents. A brief description of each is provided below: (A complete description of how to use each is given on the pages that follow.)

  - Descriptive Authoring Flowcharts. The Descriptive Authoring Flowcharts (usually referred to as Flowchart Manuals) are the primary documents used in the Job Aids. They direct the user to specific guidance, examples and references provided in the Job Aid Manuals.

  - Job Aid Manuals. As stated above, the Job Aid Manuals provide the specific guidance, examples and references necessary to produce the product specified by the ISD Block they cover. In addition, each Job Aid Manual contains one or more Worksheets to use in the development of the product.

- Another important part of the Job Aids package is of course the document you are presently reading, Introduction to the Use of Job Aids and Job Aid Resource Manual.

- The specific Job Aids available are: (Flowchart Manual and Job Aids Manual for each).

  - Job Aid for Selecting Tasks for Training (ISD I.2)
  - Job Aid for Conducting Task Analysis (ISD I.3)
  - Job Aid for Analyzing Existing Courses (ISD I.4)
  - Job Aid for Selecting Instructional Settings (ISD I.5)
  - Job Aid for Developing Objectives (ISD II.1)
  - Job Aid for Developing Tests (ISD II.2)
  - Job Aid for Describing Entry Behavior (ISD II.3)
  - Job Aid for Determining Sequence and Structure (ISD II.4)
  - Job Aid for Specifying Learning Events and Activities (ISD III.1)
  - Job Aid for Specifying Instructional Management Plan and Delivery System (ISD III.2)
  - Job Aid for Review and Selection of Existing Materials (ISD III.3)
  - Job Aid for Developing Instruction (ISD III.4)
  - Job Aid for Validating Instruction (ISD III.5)

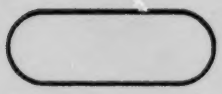
WHAT ARE THE MAIN PARTS OF THE FLOWCHART MANUAL?

- Scan through a few pages of your Flowchart Manual. Observe the following:
  - — Flowchart symbols used
  - — Instructions or questions within the flowchart symbols
  - — Supplemental information opposite most of the flowchart symbols
  - — Flowchart block and page numbering system
- For a complete description of each of the main parts of the Flowchart Manual see the pages that follow.

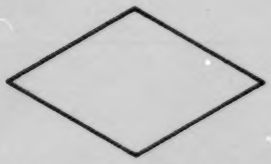
WHAT FLOWCHART SYMBOLS ARE USED IN THE FLOWCHART MANUAL?

- **Flowchart Symbols**

  — Only five symbols are used in the Flowchart Manual. These symbols and the instructions within them act as a road map to lead you step-by-step through the process of developing your particular product. We believe that after you have gotten used to using the Flowchart Manual you will find it a very useful control document. The five symbols used are as follows:

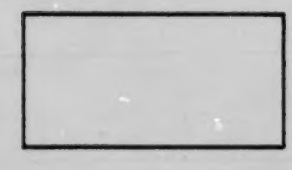


Start-Stop Symbol — Indicates either the start or stop of the activities called for in the Flowchart Manual.



Decision Symbol — Indicates that you must make a decision at this point which will determine the path that you take thru the Flowchart Manual.

Manual Symbol — Indicates that you are to refer to the Job Aid Manual for specific additional guidance or instruction shown in the symbol.



Rectangle Symbol — Indicates an activity that must be performed but does not require specific additional guidance or instruction in the Job Aid Manual. (In some cases the user is given the option of going to the Job Aid Manual to see a completed example of the activity called for in the rectangle symbol).

Go To Symbol — Indicates a branch to some other flowchart block. The branch will either be to a previously encountered block or will jump you over blocks that can be omitted.

WHAT INSTRUCTION IS PROVIDED WITHIN THE FLOWCHART SYMBOLS?

- Each flowchart symbol except the Decision Symbol contains a brief statement of the activity that you are to perform. If this activity requires the completion of part of a Worksheet the specific part of the Worksheet will be identified (remember, each Job Aid includes one or more Worksheets). Decision blocks always contain a question that can be answered with a yes or no answer. The branch you take after the decision block will depend upon your answer.

WHAT IS THE PURPOSE OF THE SUPPLEMENTAL INFORMATION PROVIDED IN THE FLOWCHART MANUAL?

- The supplemental information that is located beside most of the flowchart symbols serves the following purposes:

  - Provides a more complete description of the steps or activities that must be performed in the ISD Block you are working in than does the flowchart itself.

  - Refers you to specific pages within the Job Aid Manual for specific guidance, examples and references needed for completing the activity called for in the flowchart block. (This is associated with the Manual symbol.)

  - For some flowchart blocks (rectangle symbol) examples of the completed activity are shown in the Job Aid Manual. The supplemental information indicates the specific page in the Job Aid Manual containing the example. However, the user has the option of going to the Job Aid Manual to see the example. (The Manual symbol, on the other hand, requires the user to go to the Job Aid Manual.)

  - Acts as an executive summary which will allow commanders and supervisors to obtain a picture of the activities required by the Job Aid without reading the entire Job Aid Manual.

WHAT IS THE FLOWCHART BLOCK AND PAGE NUMBERING SYSTEM?

- The flowchart block and page numbering system is as follows:

  - Flowchart blocks are numbered so that they can be easily referred to.

  - The page numbers in each of the 13 Flowchart Manuals are preceded by an identifying letter unique to a specific ISD Block. (E.g., The Flowchart Manual pages for ISD Block I.2 go from A-1 to A-15 whereas for ISD Block I.3 the Flowchart Manual pages go from B-1 to B-15.) This same page numbering system is also used in the Job Aid Manuals.

HOW DO I USE THE JOB AID MANUAL AND WHAT ARE THE MAIN PARTS OF IT?

- It is unlikely that you will need to refer to every page in the Job Aid Manual. As previously stated, the Job Aid Manuals are used as supplements to the Flowchart Manuals that direct you to specific pages within the Job Aid Manuals. Therefore, DO NOT ATTEMPT TO USE THE JOB AID MANUALS INDEPENDENTLY OF THE FLOWCHART MANUALS.

- Scan through a few pages of your Job Aid Manual. Observe the following:

  — Partial flowcharts shown at the top of pages

  — Questions written in script that appear on most pages

  — Completed, or partially completed examples of Worksheets

WHAT IS THE PURPOSE OF THE PARTIAL FLOWCHARTS AT THE TOP OF SOME PAGES OF THE JOB AID MANUAL?

- When you are referred to the Job Aid Manual you will find a partial flowchart at the top of the Job Aid Manual page. You are to remain working with the Job Aid Manual until you come to another partial flowchart. Then return to the Flowchart Manual.

- The partial flowcharts are identical to those shown in the Flowchart Manual. They serve as an additional reminder of the activity being dealt with at the moment.

WHAT IS THE PURPOSE OF THE QUESTIONS WRITTEN IN SCRIPT THAT APPEAR ON SOME PAGES OF THE JOB AID MANUAL?

- The questions written in script are our way of telling you what follows. They highlight such things as:

  — The purpose of performing a certain activity

  — How the activity is performed

  — What sources are available for performing the activity and how good they are

  — What the Worksheet looks like after the activity is performed

WHAT IS THE PURPOSE OF THE COMPLETED OR PARTIALLY COMPLETED EXAMPLES OF WORKSHEETS?

- As previously stated, every Job Aid Manual uses one or more Worksheets (located in a pocket at the back of the Manual). The Worksheets permit you to produce (and document) the product called for in the ISD Block.

- Whenever you are required to make an entry on a Worksheet an example of that type of entry will be shown in the Job Aid Manual and will usually be circled so as to make it stand out. It is hoped that these examples will give you a clear idea of what is required on the Worksheet.

WHAT DOES THIS ALL MEAN AND WHAT DO I DO NOW?

- In this Introduction we have attempted to explain the following:
  - What Job Aids are
  - The classification system (ISD Phases and Blocks) used in the Job Aids
  - Sources of information used in the development of Job Aids
  - Job Aids presently available
  - A description of Flowchart Manuals
  - A description of Job Aid Manuals
- If you feel that you have an adequate understanding of the above, return to the Flowchart Manual now. You will be referred to specific pages in the Resource Manual (the remainder of this document) as you need the information contained in them. Do not attempt to read the Resource Manual now.

RETURN TO THE FLOWCHART MANUAL NOW

JOB AIDS RESOURCE MANUAL

HOW CAN THE RESOURCE MANUAL HELP ME?

The purpose of this resource manual is to assist you in the formation of a data-based system for decision making in the Analysis Phase of the Instructional Systems Development (ISD). In order to make logical and objective decisions based on conditions and needs in the field, you must collect, organize, analyze, and document job significant data (information). Such data includes many specifics under the broad categories of job background data, target population data, and critical task data. The specifications of specific data requirements and sources of this data should be part of the overall Job Analysis Plan.

WHAT ARE SOME SOURCES OF JOB SIGNIFICANT DATA?

There are many sources of data to support a job analysis.

These sources include such things as:

- Technical Manuals
- Field Manuals
- Army Regulations
- Circulars and Phamplets
- Programs of Instruction
- Soldier's Manuals
- Previous Task Lists
- Documentation from the Systems Engineering Era
- Reports from outside agencies, i.e., Army Research Institute, HumRRO, and other military and civilian research organizations
- Internal Research Reports
- Tables of Organization and Equipment and Tables of Distribution and Allowances
- Civilian Publications (technical journals and professional publications)
- Equipment Modification Work Orders
- CODAP (Comprehensive Occupational Data Analysis Programs)
- Field Surveys
- Panels of Experts

WHICH SOURCES OF DATA ARE INCLUDED IN THE RESOURCE MANUAL?

Each of the sources listed is useful for fulfilling specific needs in the Analysis Phase of ISD. The Job Analysis Plan should specify exactly which items of data will be needed and the recommended source(s) for each item. In this way all the data can be accessed and ready for use as soon as it is needed. The last three sources on the list, CODAP, Field Surveys, and Consensus Groups or Panels, are frequently cited in the Job Aids for specific items of information. How to use these sources is the subject of this manual.

CODAP

19 28

WHAT IS CODAP?

To provide personnel managers and training managers with the reliable job data needed for job and task analysis, the Deputy Chief of Staff for Personnel has selected the occupational survey questionnaire for data collection and CODAP (Comprehensive Occupational Data Analysis Programs) as the system for processing, reporting, and analyzing this data. The combination of questionnaire and CODAP is currently being used by all the U.S. Armed Forces to support their occupational survey and job analysis efforts. This automated data system provides information in such areas as: duties and tasks performed by job and duty incumbents; types of equipment, tools, and vehicles used and maintained; special skills and knowledge which must be met by job incumbents; quality and quantity of training received or required; physical and mental demands; and special items pertaining to personal and job background information, work environment, and job satisfaction.

WHEN SHOULD CODAP REPORTS BE USED?

Whenever data has already been prepared by CODAP it should be used in preference to school conducted surveys in order to prevent duplication of effort. CODAP has the capability of supplying all your data needs. It is the responsibility of each Army service school to initially provide the Army Occupational Survey Program with the input it must have to supply your job analysis needs, and also to develop a job analysis plan which allows sufficient time to access the necessary data.

Of particular use in job analysis are Group Summary Reports. The Job Aids suggest that you obtain these reports for documenting such information as: tasks performed in each duty position (ask for GPSUM6 report for your MOS), and percentage of soldiers in the skill level performing each task (ask for GPSUM 2).* Given sufficient lead time CODAP can also make up special reports to provide ratings on task selection factors such as, time to train OJE, consequences of inadequate performance, and probability of emergency performance (ask for FACSUM report).

HOW ARE CODAP REPORTS OBTAINED?

In order to obtain CODAP data you should first check with your supervisor to see if the information you need has already been accessed. If it has not, write to:

Commander
US Army Military Personnel Center
ATTN: DAPC-MSP-D
2641 Eisenhower Avenue
Alexandria, VA 22311

or call:

325-9272/9493 (AUTOVON 221-9272/9493).

Allow at least three weeks for the reports to arrive at your school. The necessary lead time could be much longer if you are requesting special information which CODAP has not yet collected. It is recommended that you obtain the two official guides from MILPERCEN: the US Army Military Occupational Data Bank, and the US Army Occupational Survey Program.

*Keep in mind that these percentages are based on the peacetime conditions in which soldiers are presently being surveyed. Adjustments should be made for combat tasks.

FIELD SURVEYS

WHAT IS A FORMAL FIELD SURVEY?

A formal field survey is similar to the type of questionnaire survey conducted by the Army Occupational Survey Program, only it is conducted by instructional development personnel within an Army service school.

The use of questionnaires permits the job analysis team to make limited contact with large numbers of personnel; thus large amounts of information can be collected at a relatively low cost. Questionnaires can be mailed to personnel who are asked to complete and return them, or they can be administered to groups of job incumbents and/or supervisors by local personnel who have the responsibility and authority to make sure all questionnaires are completed and returned.

WHEN SHOULD FORMAL FIELD SURVEYS BE USED?

Whenever time does not allow you to access information from the Army Occupational Survey Program, an alternate data collection method may be used. Formal field surveys are suggested as an alternate data source in the ISD Job Aids. Should you decide to conduct a formal field survey be sure to obtain permission from MILPERCEN in accordance with the guidelines in AR 600-46.

HOW IS A FIELD SURVEY QUESTIONNAIRE DESIGNED?

- **Types of Questionnaires**

There are two types of questionnaires, the closed form and the open form. We suggest using the closed form, which contains a list of possible items to be selected or blanks to be filled in with words or numbers. (For an example of a closed form questionnaire, see Appendix A.) This form has several advantages over the other alternative, the open form. It is likely to take a minimum amount of time to fill out, thus increasing the chances that it will be completed and returned. The process of tabulating and summarizing responses is simpler and less time consuming than with an open form questionnaire. Machine tabulation and computer analysis of the completed forms are practical when a large number of questionnaires is used.

A properly designed closed form questionnaire is difficult to prepare. The designer must be sure to include all possible responses expected from any of the soldiers who will complete the questionnaire. The items must be constructed on the form so that they clearly communicate to the user exactly what the designer is trying to ask. The greatest single problem with research methods is improperly worded questionnaires, as they produce faulty data. If you intend to design your own questionnaires we suggest consulting the following guides:

Morsh, J.E. and Archer, W.B. *Procedural guide for conducting occupational surveys in the United States Air Force* (PRL-TR-67-11). Lackland Air Force Base, Texas: Personnel Research Laboratory, Aerospace Medical Division, Air Force Systems Command, September 1967.

Jacobs, T.O. *Developing questionnaire items: how to do it well.* Human Resources Research Organization (HumRRO), 300 North Washington Street, Alexandria, Virginia 22314.

WHAT SHOULD BE INCLUDED ON THE QUESTIONNAIRE?

The details of the forms you use will be determined by:

1. how you will tabulate and summarize the results, and
2. what information you wish to collect.

How you will tabulate and summarize results will be determined by whether you have available a computer and other automated data handling equipment and by the number of people surveyed. **To determine what information you wish to collect, you should consider the total data requirement for the training development process. These data requirements should be predetermined in the job analysis plan so that as much information as possible can be obtained in a single questionnaire survey effort.**

One note of caution about the design of your questionnaire is that you should keep the questionnaire as short as practical. In general, the forms should be designed so they can be completed in two hours or less. One way you can save time on a complex task inventory is to list all tasks under their appropriate duty position title. This will permit the soldier to rapidly scan groups of tasks not performed and then proceed to the next duty position.

WHAT TYPE OF INSTRUCTIONS FOR COMPLETING AND ADMINISTERING THE QUESTIONNAIRES SHOULD BE PREPARED?

After the formal field survey questionnaires have been written, the instructions for completing and administering the questionnaires should be prepared. These instructions should include:

- For the user
  - an introduction explaining the purpose and importance of participating in the field survey.
  - general instructions explaining how the questionnaire is to be completed.
- For the project officer — general instructions regarding responsibilities.
- (When questionnaire is not self-administered) — specific instructions for administering the questionnaire in a controlled environment.

For examples of these types of instructions, see Appendix B.

HOW IS A SURVEY SAMPLE SELECTED?

You are now ready to select organizations and individuals to provide you with the needed job data. The complexity of the MOS, the availability and quality of published sources of job information, and the number of people in the particular job will determine how much and what kinds of information you need to collect. This will strongly influence the make-up and size of your sample. If the complexity and amount of required data are great, the number of organizations and individuals interviewed will increase. As a general rule, your survey sample should be as large as possible. This is particularly true if you do not have personnel available with the responsibility and authority to assure that most of your questionnaires will be completed. You should make an attempt to obtain a sample that represents the distribution of individuals in the MOS according to command and skill level. Review of personnel records, either by personnel employees, members of your job analysis team, or your field representatives who will conduct the survey will be required to obtain data upon which to base choices for your survey.

- In selecting UNITS for sampling, you should select units that:
  1. have at least a small number of job holders and supervisors who do the particular job to be analyzed. Preferably, you should choose some units that have a relatively small number of job holders, and some that have large numbers.
  2. are geographically and environmentally representative.
- In selecting INDIVIDUALS within the units, you should select a group made up of individuals who:
  1. perform and supervise the job being analyzed
  2. perform with average satisfactory proficiency
  3. are representative in terms of length of time on the job
  4. are representative in terms of training.

For certain types of information you will also want to choose at least a few job holders or supervisors who are acknowledged experts at the job.

HOW IS A QUESTIONNAIRE SURVEY CONDUCTED?

- **Trial Run (Validation of Instruments)**

Before sending out the total number of questionnaires you intend using, you may wish to send out a small number. This will permit you to check the initial results and possibly make some changes in your questionnaires or instructions. Then you will send out what you hope will be the total number of questionnaires required.

- **Group Administration**

The ideal way to administer questionnaires is group administration. Where the local responsible official and his assistants schedule the administration he should do the following:

— Make certain that only eligible individuals are seated in the administration area

— Read the administrative instructions

— Provide any necessary assistance in completing the questionnaires

— Return the completed questionnaires to the school

- **Individual Administration**

Often, particularly with individuals at remote stations, group administration is impractical. In these cases, it is sometimes effective to send the questionnaires to a responsible officer and request that they be returned by a reasonable suspense date. Careful attention should be paid to the instructions for administration or self-administration. If your command has no authority to require that a suspense date be met, then you must either obtain the concurrence of a command with that authority, or be willing to accept a reduced percentage return.

- **Return of Questionnaires**

How much confidence can you have in the validity of your questionnaire if you get less than a 100 percent return? Less and less confidence can be expected with each reduction in the percentage returned. What can you do if you are not satisfied with the percentage of returns of the questionnaires? We suggest you try the following:

1) Send out more forms to different people and hope for better results.

2) Recontact some of the first sample and try to encourage them to return the questionnaires.

3) Visit a random sample of those who did not respond and compare their forced responses with the voluntary responses. Then you and your supervisors will have to decide how much chance you are willing to take that the data you have received presents a sufficiently accurate picture of the job as it really exists.

PANELS

WHAT IS A PANEL OF EXPERTS?

With this method a group of personnel, selected for their experience and knowledge of the job, is brought together to confer about the required job analysis data. Panels may be made up of one or more of the following types of members:

1) Subject Matter Experts (SMEs)

   These are personnel found at your school who are acknowledged experts in the tasks, duty positions or MOS you are analyzing. They may be found among instructors or ISD personnel who hold the MOS. SMEs may or may not have had recent field experience.

2) Job Incumbents

   This group includes those who are presently holding the jobs/performing the tasks/ you are interested in, or who have recently held the jobs. The more recent the better. More than three years away from the field would disqualify a potential panel member.

3) Job Supervisors

   This group includes those who are presently or have recently (within the past three years) supervised soldiers in the jobs/tasks you are interested in.

Job incumbents and job supervisors may be found on the post where your school is located or at other locations. Check the TOEs and TOAs to find out where personnel may be assigned. While personnel assigned to your post are most conveniently assembled, they may not be completely representative of job incumbents/supervisors serving in other locations. Also, they probably have been heavily burdened by school surveys, panels, etc., already due to their proximity to the school. Therefore, personnel from other locations may have to be used.

WHEN IS A PANEL USED?

Panels of experts are a good alternate data source when:

- CODAP is not available
- time and funds are inadequate for conducting a field survey
- the type of information required can be reliably provided by a small group

WHEN ARE SUBJECT MATTER EXPERTS USED?

With this method, a group of highly experienced personnel is brought together to record and organize the required job analysis data. This method is particularly useful in collecting job data on new jobs or on managerial and supervisory jobs where many of the most critical behaviors are not directly observable. Since the members of a panel of SMEs are experts in the MOS being analyzed, their collective effort should be decisions about the requirements of the job. In general, their greatest effectiveness is in evaluating and making decisions about job data that have been collected from other sources by other means.

WHEN ARE RECENT JOB INCUMBENTS AND/OR SUPERVISORS USED?

With this method, a group of job incumbents, job supervisors, or a combination of these, is brought together to provide information about their jobs. The primary function of this type of panel is to provide information about their jobs, not to make decisions. Another name for this type of panel is Consensus Group.

HOW IS A PANEL ASSEMBLED?

The panel is a relatively inexpensive and easy approach to collecting data. Three to seven persons is the number recommended to make up the panel. Whenever possible, you want panel members to be representative of different locations and types of units in the field. While many experts may be available within your school it is critical that their views be balanced by those of persons serving presently or recently in the field. If all of the panel members come from schools, there may be a tendency for the outcome to reflect what exists in training rather than what actually exists on the job.

Appendix A

EXAMPLE OF A CLOSED FORM QUESTIONNAIRE

JOB INVENTORY (DUTY-TASK LIST)	AFSC 921X0/922X0	Page 7 of 44 Pages

1. Check tasks you perform now (✓)
2. Add any tasks you do now which are not listed.
3. In the "Time Spent" column, rate checked (✓) tasks on time spent in your present job.

Time Spent Scale

1 - VERY MUCH BELOW AVERAGE
2 - BELOW AVERAGE
3 - SLIGHTLY BELOW AVERAGE
4 - ABOUT AVERAGE
5 - SLIGHTLY ABOVE AVERAGE
6 - ABOVE AVERAGE
7 - VERY MUCH ABOVE AVERAGE

C. FITTING AND MAINTAINING LIFE RAFTS AND PRESERVERS		✓ CHECK IF DONE IN PRESENT JOB	TIME SPENT DOING THESE TASKS IN PRESENT JOB
1. Clean life preservers	42		
2. Clean life rafts	43		
3. Condemn non-reparable life rafts or life preservers	44		
4. Fit life preservers	45		
5. Inspect life preservers	46		
6. Inspect life raft accessories	47		
7. Inspect life rafts	48		
8. Inspect or weight test carbon dioxide (CO_2) cylinders or cartridges	49		
9. Make entries on or review Life Preserver Data forms (AFTO Form 486)	50		
10. Make entries on or review Life Preserver Inspection Data Record forms (AFTO Form 338)	51		
. . . . .			
11. Make entries on or review Life Raft Inspection Record forms (AFTO Form 337)	52		
12. Make entries on or review User Certification Label forms (AFTO Form 27)	53		
13. Pack life preservers	54		
14. Pack life raft accessory containers	55		
15. Pack life rafts	56		
16. Perform functional tests of life preservers	57		
17. Perform functional tests of life rafts	58		
18. Perform inflation tests of life preservers	59		
19. Perform inflation tests of life rafts	60		
20. Perform minor repairs to life preservers such as patching rips, tears, or holes	61		
. . . . .			
(Continued next page)			

JOB INVENTORY (DUTY-TASK LIST)	AFSC 921X0/922X0	Page 8 of 44 Pages

1. Check tasks you perform now (✓)
2. Add any tasks you do now which are not listed.
3. In the "Time Spent" column, rate checked (✓) tasks on time spent in your present job.

Time Spent Scale

1 - VERY MUCH BELOW AVERAGE
2 - BELOW AVERAGE
3 - SLIGHTLY BELOW AVERAGE
4 - ABOUT AVERAGE
5 - SLIGHTLY ABOVE AVERAGE
6 - ABOVE AVERAGE
7 - VERY MUCH ABOVE AVERAGE

C. FITTING AND MAINTAINING LIFE RAFTS AND PRESERVERS (CONTINUED)		✓ CHECK IF DONE IN PRESENT JOB	TIME SPENT DOING THESE TASKS IN PRESENT JOB
21. Refill CO_2 cylinders	62		
22. Send life raft compressed gas cylinders to other agencies for test, refill, or inspection	63		
23. Store life rafts or life preservers	64		
IF A TASK THAT YOU PERFORM IS NOT LISTED ANYWHERE IN THE ENTIRE LIST, WRITE IT IN THE BLANK SPACES BELOW.			

Appendix B

ADMINISTRATIVE PROCEDURES FOR CLOSED FORM QUESTIONNAIRE

1. Introduction (for user of questionnaire)
2. General Instructions (for user of questionnaire)
3. General Instructions (for project officer)
4. Specific Instructions for Administering Questionnaire (for project officer when questionnaire is administered in a controlled environment.

TO: USER OF QUESTIONNAIRE

INTRODUCTION

TO THE NONCOMMISSIONED OFFICER:

This questionnaire is part of a field survey designed to identify tasks for military police training. Its specific purpose is to obtain from you, the Noncommissioned Officer, information on task criticality and frequency of performance. Feedback gained from this questionnaire will play a major part in redesigning the Noncommissioned Officer Advanced Education System. The ultimate goal is to design training so that it reflects what we have learned from you in the field. This goal is possible only with your full cooperation. Consider each task listed in this questionnaire carefully and give your best response. Your contribution is essential to a successful survey.

TO: USER OF QUESTIONNAIRE

GENERAL INSTRUCTIONS

1. Complete this survey questionnaire within the time specified by your unit project officer and return it to him upon completion.

2. Because instructions for completing each part of this survey questionnaire are different, read all instructions carefully.

3. Part II requires that you supply biographical information. This information will be used to correlate feedback received from the field. Print all answers in the spaces provided on the appropriate survey questionnaire page.

4. In the upper right corner of each page of Part III, Task Inventory, of this survey questionnaire is a BOOKLET NUMBER block. Immediately to the left of this block is the individual booklet number. Print the individual booklet number in the BOOKLET NUMBER block on each page of the Task Inventory as demonstrated in the example.

EXAMPLE:

	BOOKLET NUMBER									
	0	1	2	■	4	5	6	7	8	9
(000345)	0	1	2	3	■	5	6	7	8	9
	0	1	2	3	4	■	6	7	8	9

5. Part III, Task Inventory, is divided into nine (9) separate sections (Sections I-IX). The content of these sections concerns tasks you may perform in your present duty assignment. You are asked to rate each task in accordance with three criteria - frequency of task performance, immediacy of task performance, and importance of task to mission success.

   Base all selections on your experience in your present duty assignment.

   a. Column A requires that you rate how often you perform each task on a scale from one to four. The criterion for this rating is the frequency of task performance. Those tasks performed most frequently will normally be rated four while those tasks not performed at all will be rated one.

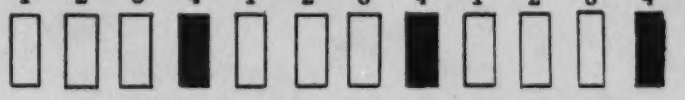
b. Column B requires that you determine how soon you must be capable of performing each task after reporting to your present duty assignment. The criterion for this rating is the immediacy of task performance. Of the four possible responses, select the one most nearly describing your requirements. Select response number four for those tasks which you must be capable of performing immediately upon reporting for duty. Select response number one for those tasks which you never perform.

c. Column C requires that you describe, in your opinion, how important each task is to mission success. The criterion for this rating is the importance of the task to the accomplishment of the unit mission. Those tasks that, in your opinion, are most important to mission success will be rated four while those tasks that you consider least important will be rated one.

6. After selecting, enter your responses for each task, using either a pen or pencil, in the answer portion adjacent to the appropriate task statement as demonstrated in the example.

EXAMPLE: The task PREPARE CORRESPONDENCE, if rated as performed FREQUENTLY in Column A, identified as must be capable of performing IMMEDIATELY in Column B, and determined by you to be MOST IMPORTANT in Column C, would be entered in the answer portion, as shown below.

PREPARE CORRESPONDENCE 1 2 3 4 1 2 3 4 1 2 3 4



7. After each section of Part III, Task Inventory, is a Write-In Section. These write-in sections are provided in order that you may comment on each task inventory section, or list any task(s) you think should be included in the Task Inventory. These sections also allow you to comment on those tasks that you find are the most difficult for you to perform.

TO: PROJECT OFFICER

GENERAL INSTRUCTIONS FOR PROJECT OFFICER

1. General. The Military Police School is currently involved in redesigning basic military police training to produce military policemen better equipped to perform when they reach the unit. The emphasis is toward training replacements in tasks actually being performed in the field. The questionnaires in this packet are designed to identify those tasks.

   The care with which you, the project officer, administer the questionnaires will determine the accuracy of field feedback and, consequently, the success or failure of this project.

2. Survey Packet Contents.

   a. Questionnaire

   b. Supervisor Questionnaire

   c. Project Officer Instructions

   d. Answer Sheets for Questionnaire

   e. Pencils for use on answer sheets.

3. Responsibilities.

   a. Unit Commander. The unit commander is requested to appoint a project officer and to monitor administration of the survey.

   b. Project Officer. The project officer is responsible for the control and handling of questionnaires, for the administration of the questionnaires, and for returning completed and unused questionnaires to the Military Police School.

   c. Questionnaire Administrator. The project officer may appoint someone to administer the questionnaire, if necessary. Normally, however, it is recommended that the project officer administer the questionnaire himself.

4. About the Questionnaires.

   a. Questionnaire. This questionnaire is designed to identify tasks being performed by military policemen in the field and the frequency with which each task is performed.

   b. Supervisor Questionnaire. The supervisor questionnaire is programmed to provide feedback on task criticality, probability of deficient performance, and the frequency with which each task is performed.

5. Who Takes The Questionnaire. The project officer is responsible for selecting individuals to take the questionnaires (respondents) within their units. Those selected must meet the requirements listed below:

   a. The questionnaire respondent must:

      (1) Be in an M.P. duty assignment (actually performing M.P. duties)

      (2) Have been on the job at least 90 days

   b. The respondent to the Supervisor Questionnaire must:

      (1) Command or supervise M.P. personnel

      (2) Have been in a command or supervisory position in the unit for 90 days. (Assign questionnaires proportionately among officers and NCO's.)

6. Questionnaire Administration.

   a. Questionnaire. The questionnaire will be administered in a controlled environment. Persons participating in the survey will be allowed two hours to complete the questionnaire and will turn the questionnaire and answer sheets in to the questionnaire administrator prior to leaving the survey area. Individual questionnaires and their accompanying answer sheets will be kept together.

      See attached item for the procedure to be followed in administering the questionnaire.

   b. Supervisor Questionnaire. Supervisors selected as respondents for this questionnaire will be allowed to sign for the questionnaire and take it with them. They will complete the questionnaire and return it to the project officer within a time frame he specifies. This time frame must be compatible with the suspense date to the Military Police School.

7. Questionnaire Handling. Questionnaires and answer sheets become FOR OFFICIAL USE ONLY when completed. For ease of accounting, each questionnaire and its accompanying answer sheets are numbered. All questionnaires must be returned to the Military Police School whether they are used or not. Instructions for returning the questionnaires to the Military Police School are contained in the basic letter. If you have any problems or questions, contact (NOTE: Give name or names, address, and telephone number).

TO: PROJECT OFFICER ADMINISTERING QUESTIONNAIRE IN A CONTROLLED ENVIRONMENT

ADMINISTERING THE QUESTIONNAIRE

A-1. Preparation. A classroom or training room equipped with desks will provide the most ideal site for administering the questionnaire. Questionnaires, answer sheets, and two electrographic pencils should be issued to participants after everyone who is to take the questionnaire has arrived. This ensures that everyone starts together.

A-2. Instructions. The questionnaire administrator will present the following instructions.

a. "Is there anyone here who is not working in an M.P. duty position? Is there anyone here who has not been assigned to their present duties at least 90 days? If so, please leave at this time."

b. "Will everyone at this time please read the first page in the questionnaire which has been issued to you."

(Note to the administrator: It must be emphasized that your enthusiasm for this project or lack of it will be contagious. It is important that you demonstrate a positive attitude to the participants. Allow time for the first page to be read and underline the importance of the questionnaire with the following statement.)

"I would like to stress the importance of this questionnaire. The Military Police School wants to design training to fit the job in the field. You are the only people who can tell them what they need to know. Please think through each question and give your best answers."

c. "Turn to Part I, Biographical Information, and answer questions 1-13. When you have finished, lay your pencil on the desk so I will know when to proceed to the next step."

d. "Now read the instructions found in Part II."

(Note to the administrator: Allow reasonable time for everyone to finish before moving to the next step.)

"Are there any questions?"

e. "As you read in the instructions, there are nine answer sheets accompanying your questionnaire. Take the answer sheets and number them one through nine to correspond to the first nine sections in Part III of the questionnaire. If you do not have nine answer sheets, raise your hand—I have extra ones. Use a separate answer sheet for each section. Answer only the number of questions listed in each and move to the next section and answer sheet. It is not necessary to write your name, rank, the date, or course at the top of the answer sheet. Also, disregard the blocks marked score, grade, extra points, and social security number."

f. "Because of the size of this survey, these answer sheets will be read by machine. You must use the special pencils provided so that the machine can read the answers. When marking your answer, take care to fill the vertical rectangle outlining the letter as shown by the example on page 4 of the instructions. Also, please be sure not to make any stray marks on the answer sheets. Finally, do not fold the answer sheets."

g. "All answers must be based on your experience in this your present unit. Do not call on experience in previous units. This means that if you do not perform a particular task in your present unit, you must mark 'do not perform this task' on your answer sheet."

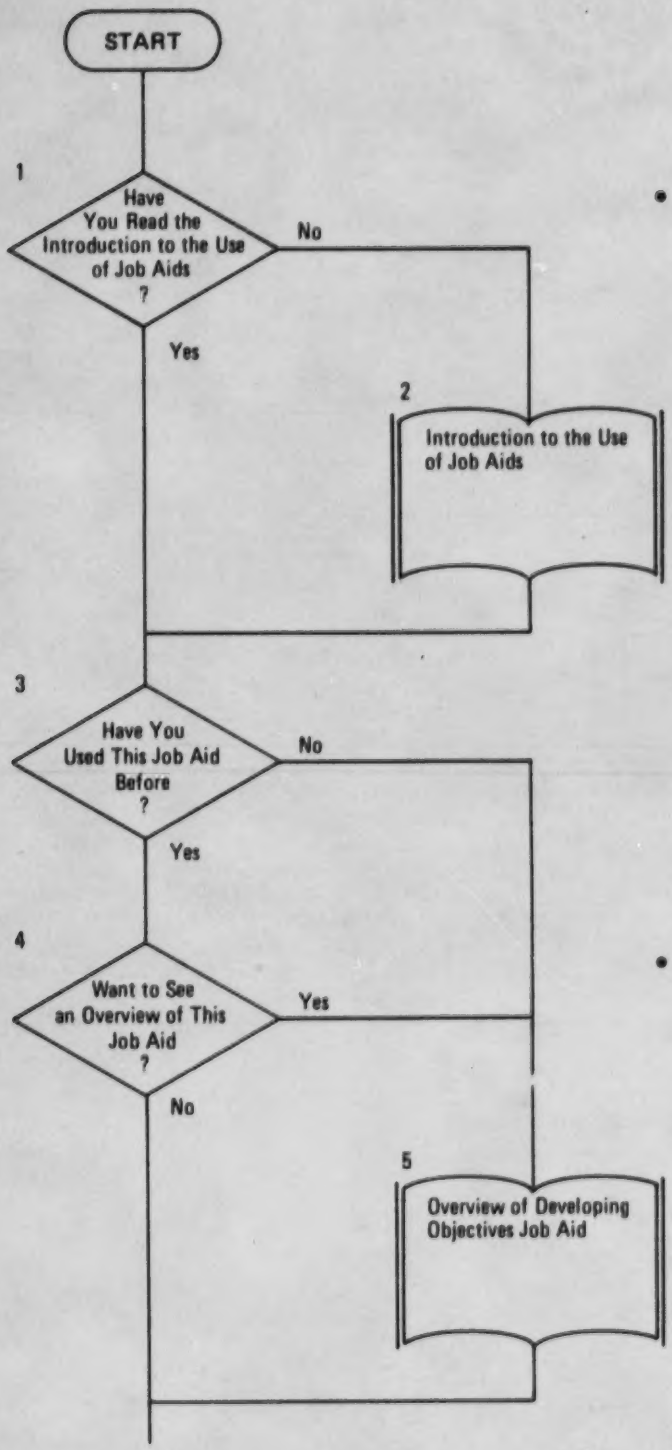
h. "You may begin answering Part III. Remember Section ten, the written section. When you finish answering all questions, insert your answer sheets into the questionnaire and turn them in to me. You may leave when you are finished. Are there any questions?"

A-3. Conclusion. After everyone has taken the questionnaire, ensure that all questionnaires and answer sheets are accounted for. Collect the pencils provided so that they may be returned to the Military Police School along with the questionnaires and answer sheets.

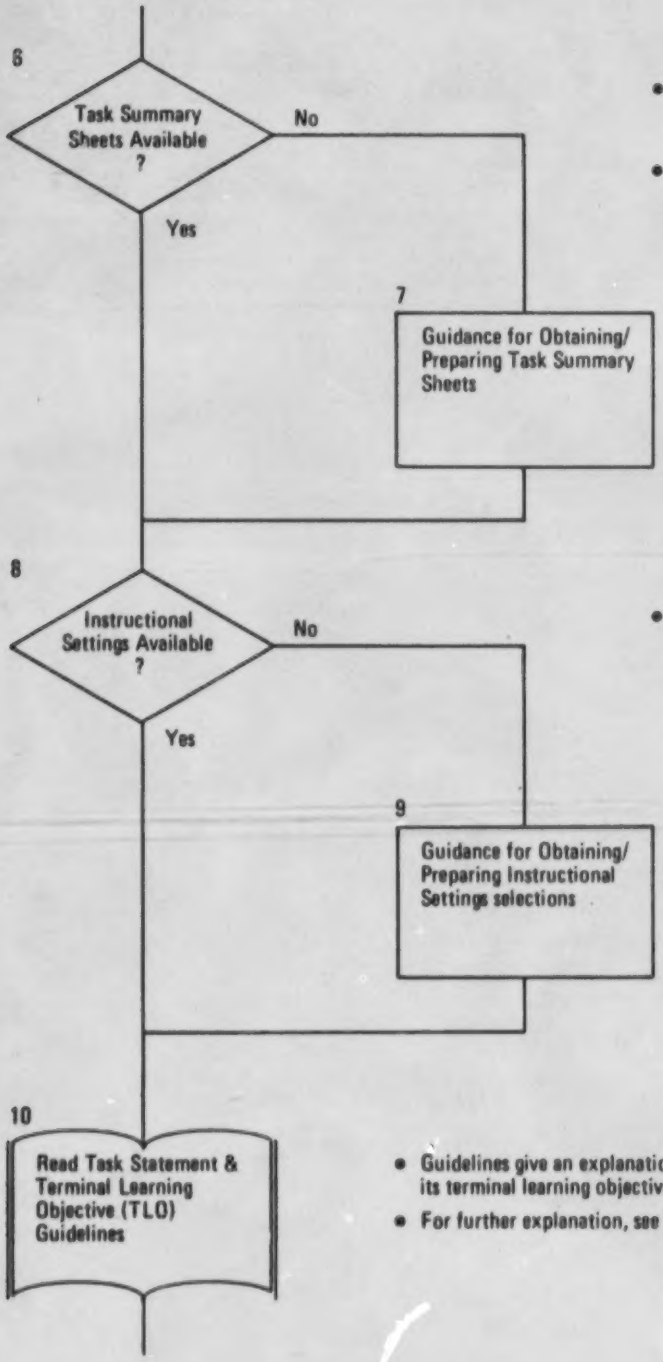
JOB AIDS:
DESCRIPTIVE AUTHORING FLOWCHARTS

ISD II.1 Develop Objectives

This is the 5th in a series of ISD Job Aids for use in instructional design and development. This volume will direct you to specific guidance, examples, and references provided in the supplementary manual "Job Aid for Developing Objectives ISD II.1." If you do not have the supplementary manual, request it from your supervisor.



- This introduction provides the user with instruction on the basic structure of the Job Aids and guidance for their use.
- Refer to Introduction.
- Overview includes:
  - Goal
  - Objectives
  - Products
  - Major steps in process
  - Worksheets used
  - Descriptive flowchart
- For detailed overview, see Manual, page E-4.



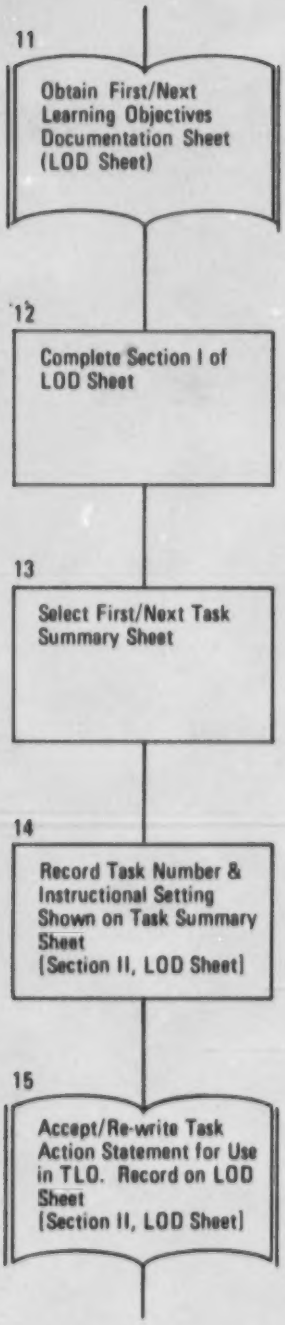
- This question asks: Do you have the Task Summary Sheets for all the tasks for which you are developing objectives?
- Task Summary Sheets are made up for each task presented in the Soldier's Manual (SM). They are direct translations of the Task Analysis Worksheets into SM format.

- Task Summary Sheets should be available as output from ISD I.3 Conduct Task Analysis, or in the Soldier's Manual.
- If procedures for preparing Task Summary Sheets were not complete, go to Job Aids: Descriptive Authoring Flowcharts, page B-1.
- When Task Summary Sheets have been obtained, return to Block 6.

- This question asks: Do you know the instructional setting for each task among the Task Summary Sheets?

- Instructional settings should be available as output from ISD I.5 Select Instructional Setting.
- If procedures for selecting instructional settings were not complete, go to Job Aids: Descriptive Authoring Flowcharts, page D-1. (Instructional settings are also listed in the Commander's Manual).
- When instructional settings have been obtained, return to Block 8.

- Guidelines give an explanation of the relationship between the task statement and its terminal learning objectives (TLO).
- For further explanation, see Manual, page E-12.

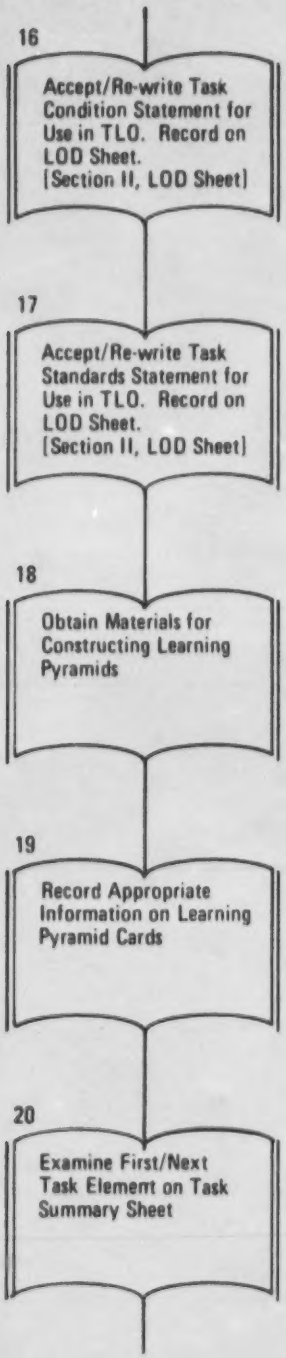

11
Obtain First/Next Learning Objectives Documentation Sheet (LOD Sheet)
12
Complete Section I of LOD Sheet
13
Select First/Next Task Summary Sheet
14
Record Task Number & Instructional Setting Shown on Task Summary Sheet (Section II, LOD Sheet)
15
Accept/Re-write Task Action Statement for Use in TLO. Record on LOD Sheet (Section II, LOD Sheet)

- The Learning Objectives Documentation Sheet is used in this block to record:
  - the terminal learning objective (TLO) for a task.
  - all task elements and enabling skills and knowledges (S&K) determined by learning analysis process.
  - all the learning objectives (LOs) for the TLO.
  - learning categories/subcategories.
- Column E will be completed in ISD II.4, sequence and structure objectives.
- For guidance on obtaining the LOD Sheet, see Manual, page E-15.

- Section I includes the following identifying information:
  - Name/Office Symbol
  - Date
  - Course
- For example, see Manual, page E-17.

- For example, see Manual, page E-19.

- For guidance in determining whether the task action statement is acceptable as a TLO action statement, see Manual, page E-20. Manual also provides guidance for re-writing action statement when necessary.


16
Accept/Re-write Task Condition Statement for Use in TLO. Record on LOD Sheet. [Section II, LOD Sheet]
17
Accept/Re-write Task Standards Statement for Use in TLO. Record on LOD Sheet. [Section II, LOD Sheet]
18
Obtain Materials for Constructing Learning Pyramids
19
Record Appropriate Information on Learning Pyramid Cards
20
Examine First/Next Task Element on Task Summary Sheet

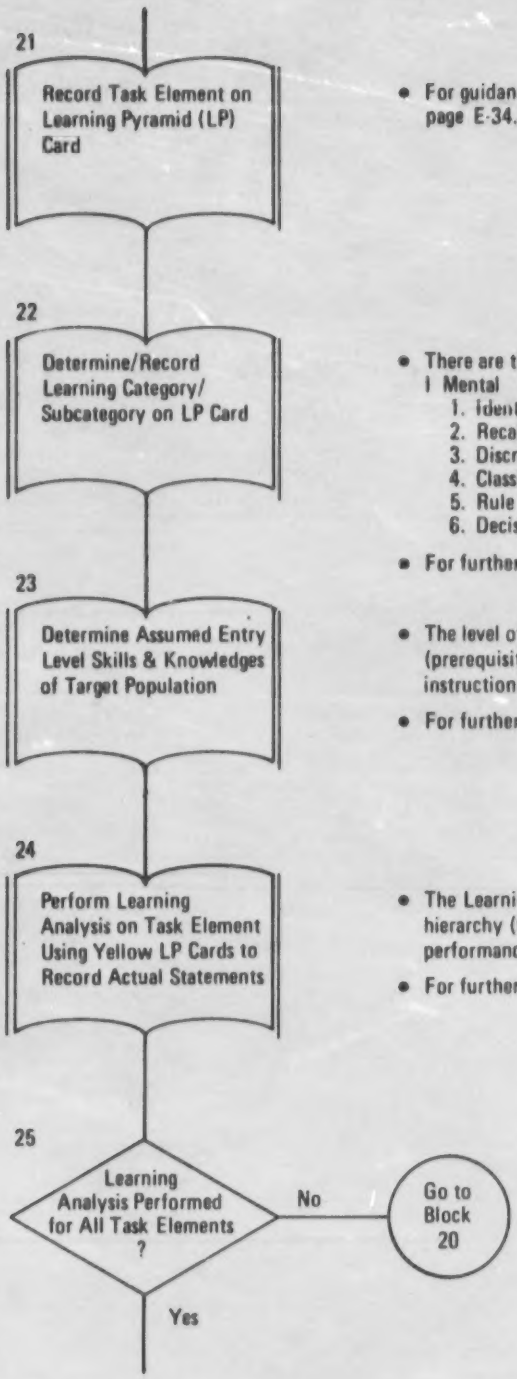
- For guidance in determining whether the task conditions statement is acceptable as a TLO conditions statement, see Manual, page E-24. Manual also provides guidance for re-writing conditions statement when necessary.

- For guidance in determining whether the task standards statement is acceptable as a TLO standards statement, see Manual, page E-27. Manual also provides guidance for re-writing standards statement when necessary.

- This block begins the learning analysis process. Learning Analysis is a graphic display of the task elements with their enabling skills and knowledges, in the format of a "learning pyramid."
- Materials include special 3" X 5" cards and large sheets of paper and tape.
- For guidance on obtaining materials for Learning Pyramids, see Manual, page E-30.

- There are two kinds of Learning Pyramid (LP) cards:
  - White cards on which task number, instructional setting, learning objective number, and TLO action statement are recorded in this step.
  - Yellow cards on which only the task number is recorded in this step.
- For further information and guidance, see Manual, page E-31.

- Task element is examined to determine if it is unitary. If not, it is broken down into individual actions.
- For further information, see Manual, page E-33.


21
Record Task Element on Learning Pyramid (LP) Card
22
Determine/Record Learning Category/ Subcategory on LP Card
23
Determine Assumed Entry Level Skills & Knowledges of Target Population
24
Perform Learning Analysis on Task Element Using Yellow LP Cards to Record Actual Statements
25
Learning Analysis Performed for All Task Elements ?
No
Go to Block 20
Yes

- For guidance on recording task element for Learning Pyramids, see Manual, page E-34.

- There are three learning categories and nine subcategories:

  I Mental
  1. Identify Objects and Symbols
  2. Recalling Information
  3. Discriminating
  4. Classifying
  5. Rule Learning and Using
  6. Decision-Making

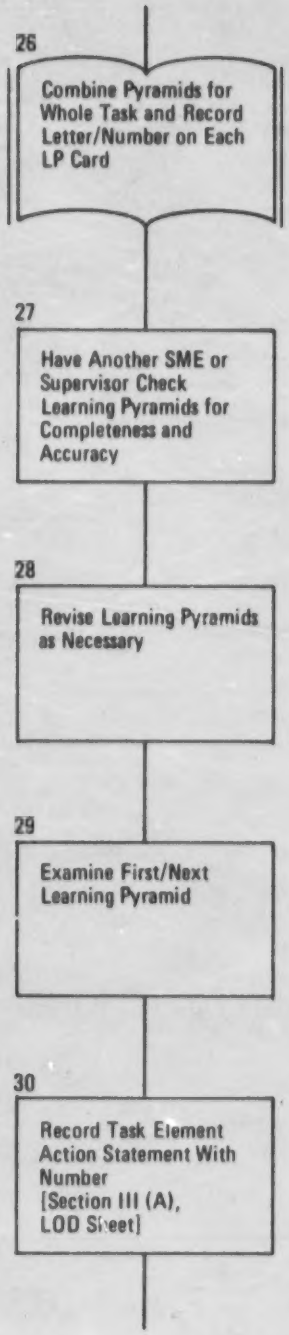
  II Physical
  1. Gross Motor Skills
  2. Responsive Motor Skills

  III Attitudinal
  1. Attitude Learning

- For further information and guidance, see Manual, page E-35.

- The level of detail of the analysis is based on the assumed entry level (prerequisite) skills/knowledges of the soldiers who will be receiving the instruction based on these objectives.
- For further information and guidance, see Manual, page E-38.

- The Learning Analysis, displayed by the Learning Pyramid, identifies the hierarchy (from simple to complex) of skills and knowledges required for performance of the task element.
- For further information and guidance, see Manual, page E-39.

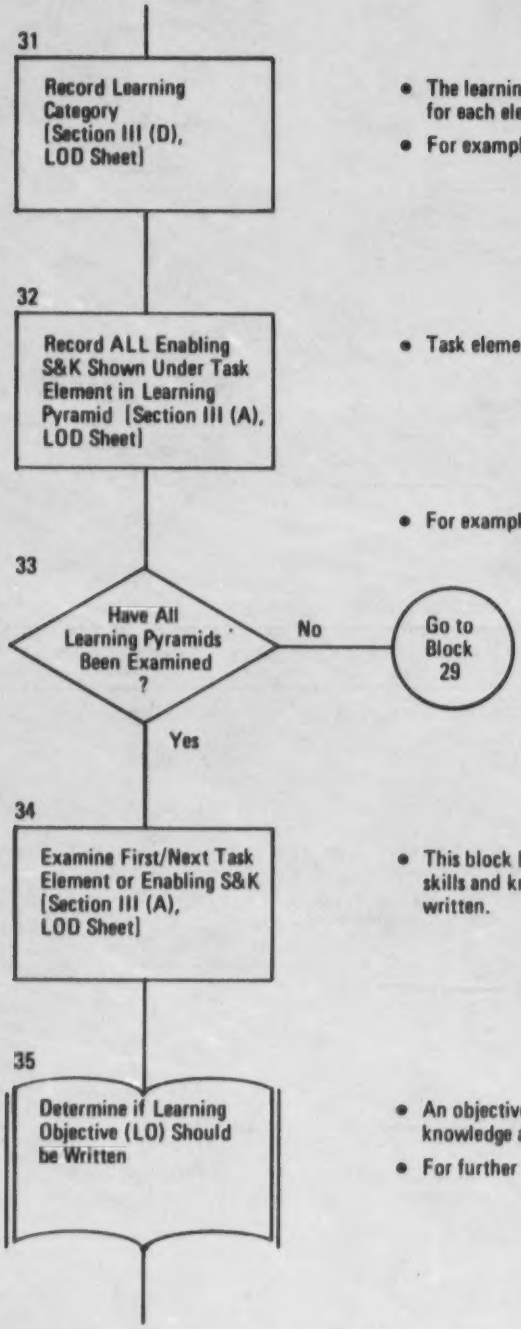

26
Combine Pyramids for Whole Task and Record Letter/Number on Each LP Card
27
Have Another SME or Supervisor Check Learning Pyramids for Completeness and Accuracy
28
Revise Learning Pyramids as Necessary
29
Examine First/Next Learning Pyramid
30
Record Task Element Action Statement With Number [Section III (A), LOD Sheet]

- The Learning Pyramids for each task element are combined and numbered to show the task as a whole. This helps determine how complete the learning analysis is.
- For guidance, see Manual, page E-41.

- Check by another subject matter expert will reveal any additions/deletions/changes required in analysis.

- This block begins the process of documenting the learning analysis on a permanent record.

- The action statement at the top of the pyramid is recorded.
- For example, see Manual, page E-48.


31
Record Learning Category [Section III (D), LOD Sheet]
32
Record ALL Enabling S&K Shown Under Task Element in Learning Pyramid [Section III (A), LOD Sheet]
33
Have All Learning Pyramids Been Examined ?
No
Go to Block 29
Yes
34
Examine First/Next Task Element or Enabling S&K [Section III (A), LOD Sheet]
35
Determine if Learning Objective (LO) Should be Written

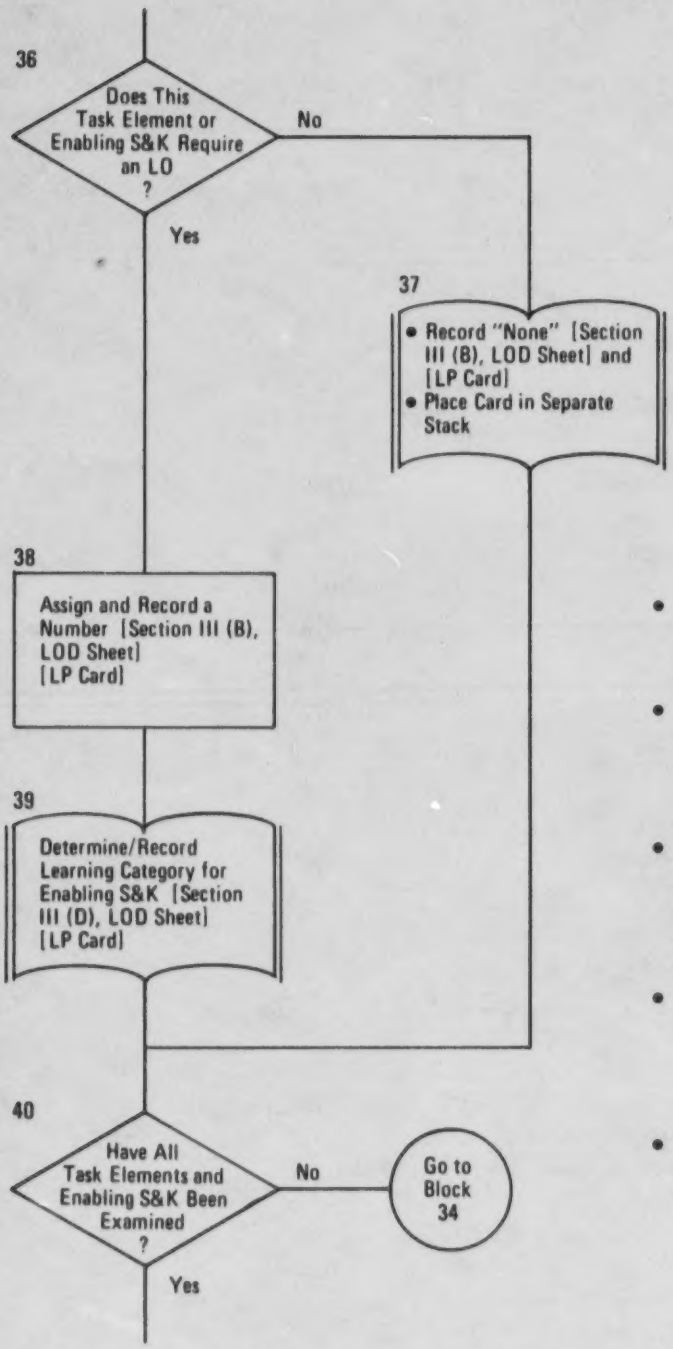
- The learning category for each task element is shown on the Learning Pyramid for each element.
- For example, see Manual, page E-49.

- Task elements are copied in order, that is:
  A
  A.1
  A.1.1
  A.1.2
  B
  B.1
  etc.
- For example, see Manual, page E-50.

- This question asks: Have all elements with their associated skills and knowledges been recorded in Section III A on the LOD Sheet?

- This block begins the process of determining which task elements and enabling skills and knowledges need to be trained, i.e., require a learning objective to be written.

- An objective does not need to be written for every task element or enabling knowledge and skill of a task.
- For further explanation, see Manual, page E-52.

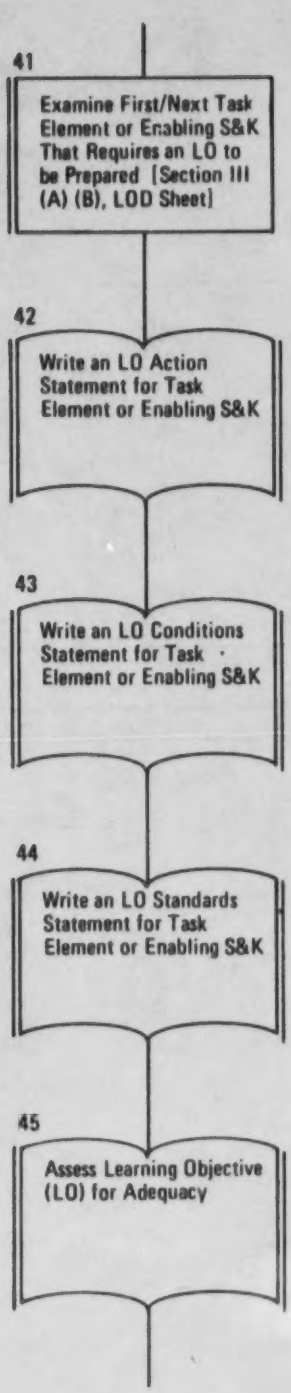

36
Does This Task Element or Enabling S&K Require an LO ?
No
Yes
37
• Record "None" [Section III (B), LOD Sheet] and [LP Card]
• Place Card in Separate Stack
38
Assign and Record a Number [Section III (B), LOD Sheet] [LP Card]
39
Determine/Record Learning Category for Enabling S&K [Section III (D), LOD Sheet] [LP Card]
40
Have All Task Elements and Enabling S&K Been Examined ?
No
Go to Block 34
Yes

- For examples of LOD Sheet and Learning Pyramid Cards when this information has been recorded, see Manual, page E-54.

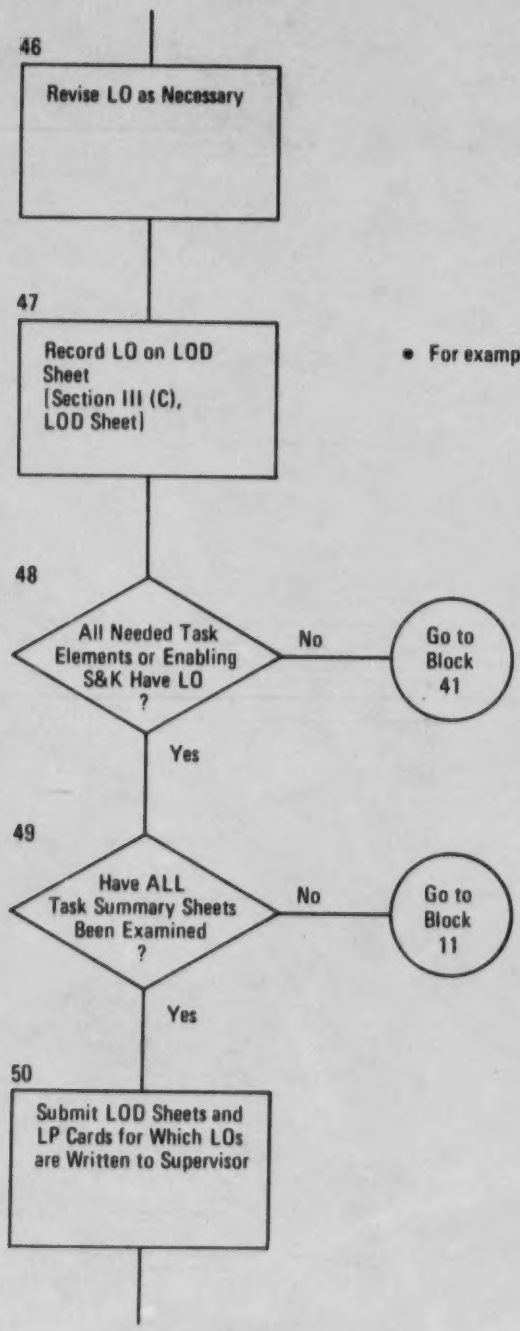
- LO number is a combination of the last four digits of the task number and the letter/number combination assigned to each task element or enabling skill and knowledge in Section III (A).
- For examples of LOD Sheet and Learning Pyramid cards when an LO number has been assigned, see Manual, page E-55.

- The learning category of each task element taken from the Task Summary Sheet was determined in Block 22. It is now necessary to identify the learning category of each enabling skill and knowledge which requires an objective to be written so that the proper action word can be selected.
- For review of learning category information, see Manual, page E-56.

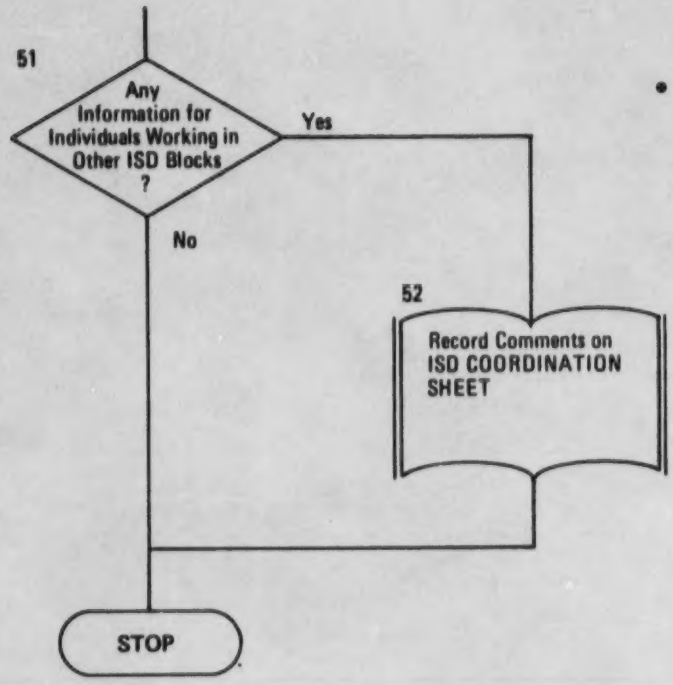
- This question asks: Have all task elements and enabling skills and knowledges been examined to determine if they require a learning objective?


41
Examine First/Next Task Element or Enabling S&K That Requires an LO to be Prepared [Section III (A) (B), LOD Sheet]
42
Write an LO Action Statement for Task Element or Enabling S&K
43
Write an LO Conditions Statement for Task Element or Enabling S&K
44
Write an LO Standards Statement for Task Element or Enabling S&K
45
Assess Learning Objective (LO) for Adequacy

- This block begins the process of writing adequate learning objectives needed to accomplish the terminal learning objective. First draft LOs can be written on practice paper, then transferred to the LOD Sheet in a later step.
- For guidance on how to write an adequate LO action statement, see Manual, page E-60.
- For guidance on how to write an adequate conditions statement, see Manual, page E-68.
- For guidance on how to write an adequate standards statement, see Manual, page E-70.
- A check list for assessing the adequacy of LOs is provided in the Manual. See page E-73.



- For example, see Manual, page E-75.



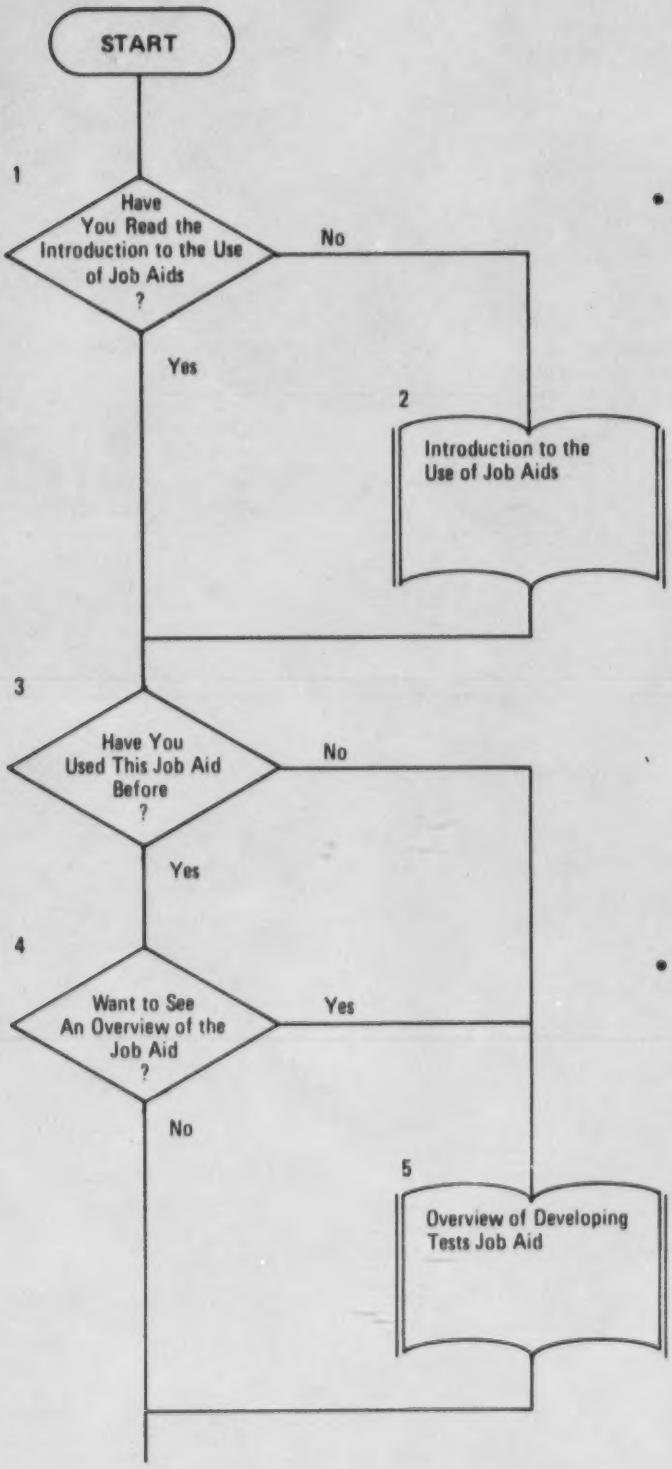
- During the process of developing objectives information may have been obtained that would be useful to persons who performed activities that fed into this block. Similarly, information may have been obtained that would be useful to persons who will be engaged in Instructional Systems Development steps that follow this one.

- Comments are recorded and submitted to appropriate persons.
- For further guidance, see Manual, page E-78.

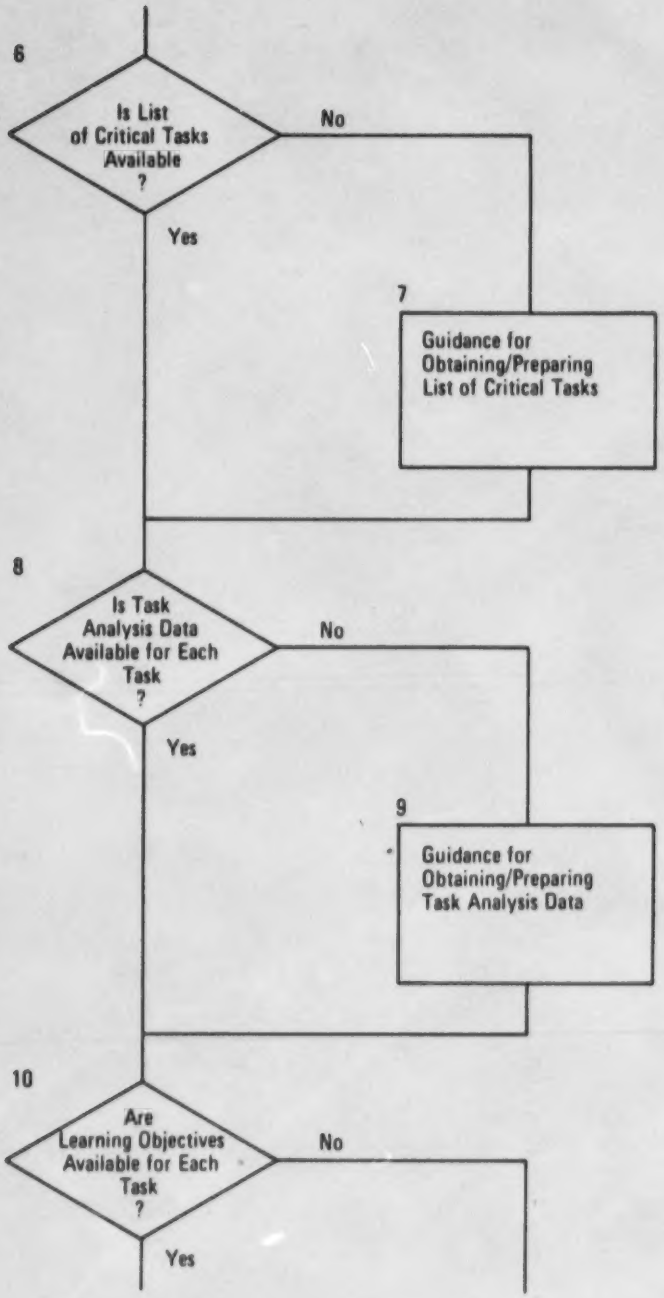
JOB AIDS:
DESCRIPTIVE AUTHORING FLOWCHARTS

ISD II.2 Develop Tests

This is the 6th in a series of ISD Job Aids for use in instructional design and development. This volume will direct you to specific guidance, examples, and references provided in the supplementary manual "Job Aid for Developing Tests ISD II.2." If you do not have the supplementary manual, request it from your supervisor.

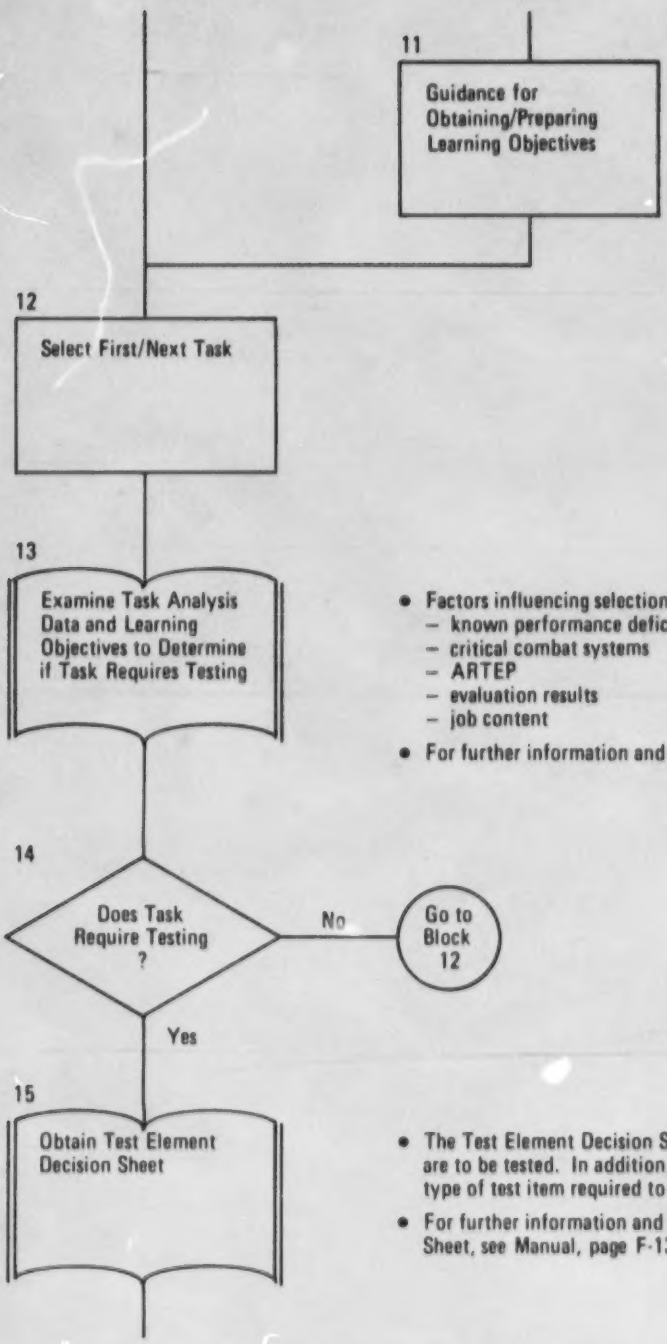


- This introduction provides the user with instruction on the basic structure of the Job Aids and guidance for their use.
- Refer to Introduction.
- Overview includes:
  - Goal
  - Objectives
  - Product
  - Major steps in process
  - Worksheets used
  - Descriptive Flowcharts
- For detailed overview, see Manual, page F-4.



- List of tasks selected for training should be available as output from ISD I.2, Select Tasks for Training.
- If a critical task list is not available, go to Job Aids: Descriptive Authoring Flowcharts, page A-3.
- When list has been obtained return to Manual, ISD I.3 Conduct Task Analysis, Block 6.

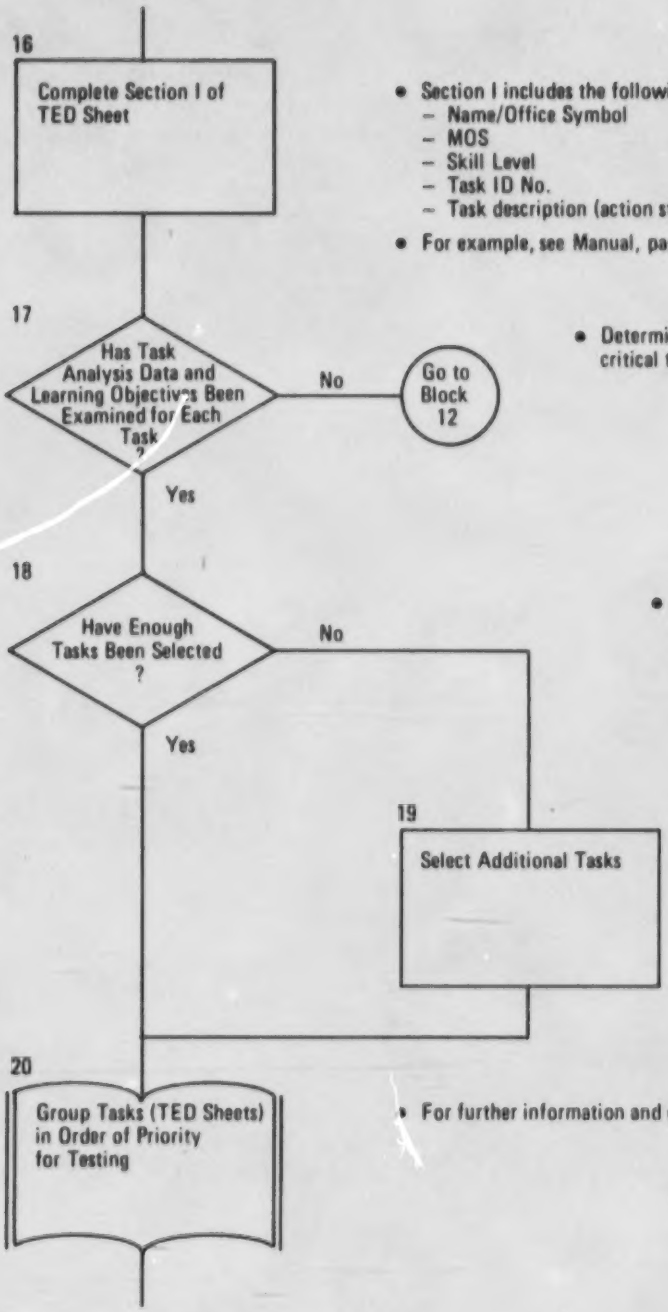
- Task Analysis Data should be available as output from ISD I.3 Conduct Task Analysis, or in the Soldier's Manual.
- If Task Analysis Data is not available, go to Job Aids: Descriptive Authoring Flowcharts, page B-1.
- When Task Analysis Data have been obtained, return to Block 8.



- Learning Objectives should be available as output from ISD II.1 Develop Objectives.
- If Learning Objectives are not available, go to Job Aids: Descriptive Authoring Flowcharts ISD II.1 Develop Objectives.
- When Learning Objectives have been obtained, return to Block 10.

- Factors influencing selection of tasks for testing include:
  - known performance deficiencies
  - critical combat systems
  - ARTEP
  - evaluation results
  - job content
- For further information and guidance, see Manual, page F-11.

- The Test Element Decision Sheet (TED) is used to record all task elements which are to be tested. In addition, each task element recorded is classified as to the type of test item required to adequately test it.
- For further information and guidance on obtaining the Test Element Decision Sheet, see Manual, page F-13.

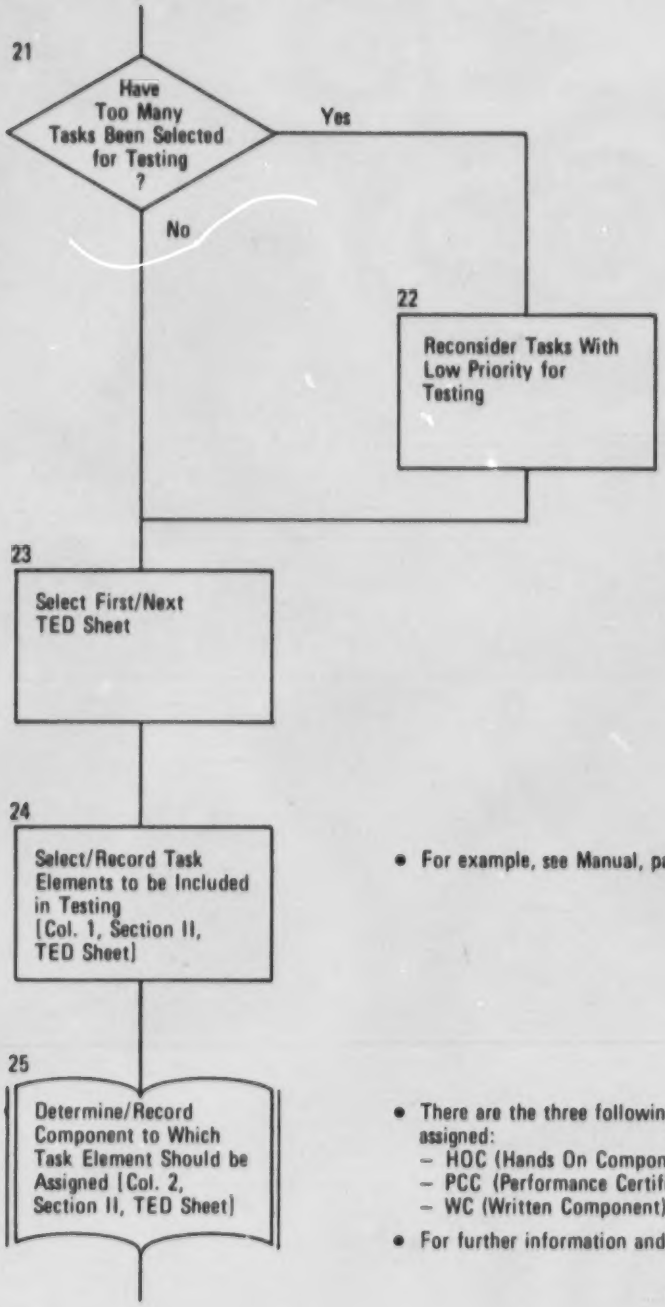


- Section I includes the following information:
  - Name/Office Symbol
  - MOS
  - Skill Level
  - Task ID No.
  - Task description (action statement only)
- For example, see Manual, page F-14.

- Determination should be complete as to which tasks in the critical task listing require testing.

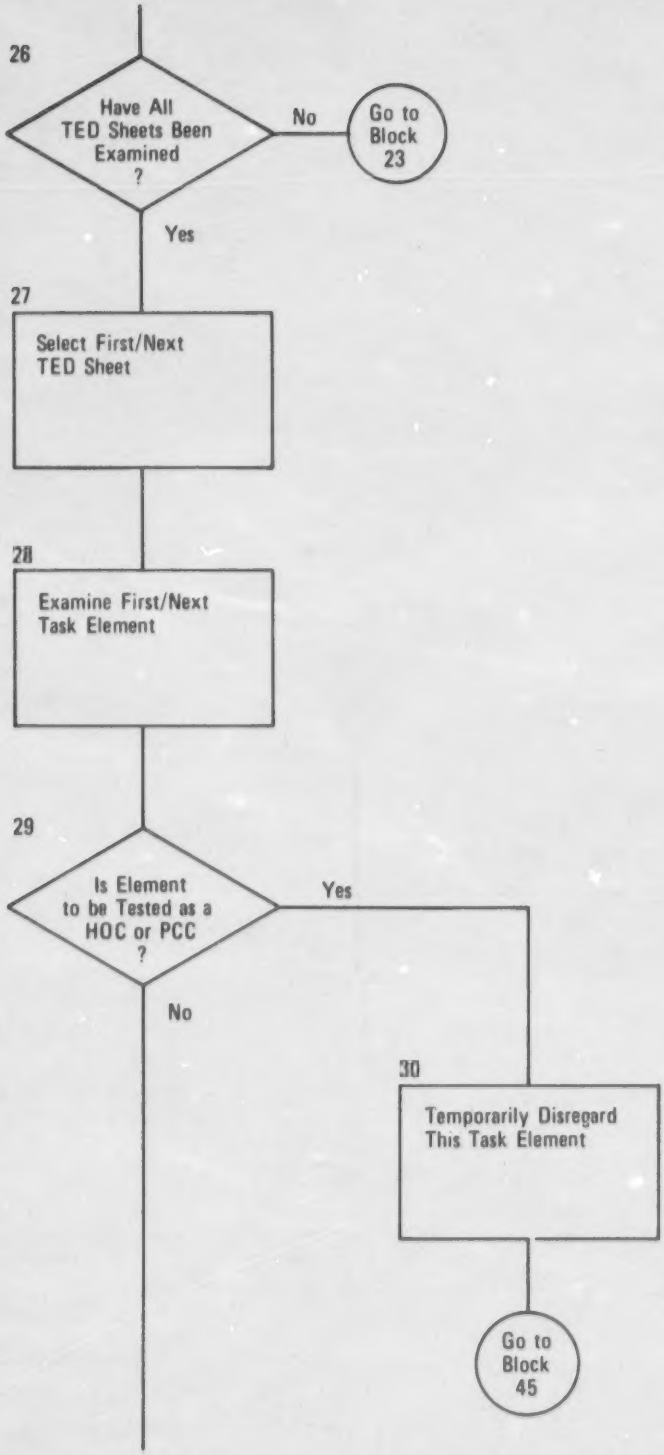
- Supervisors can provide guidance for making this decision. Their decision will be based on the intended purpose of the test.

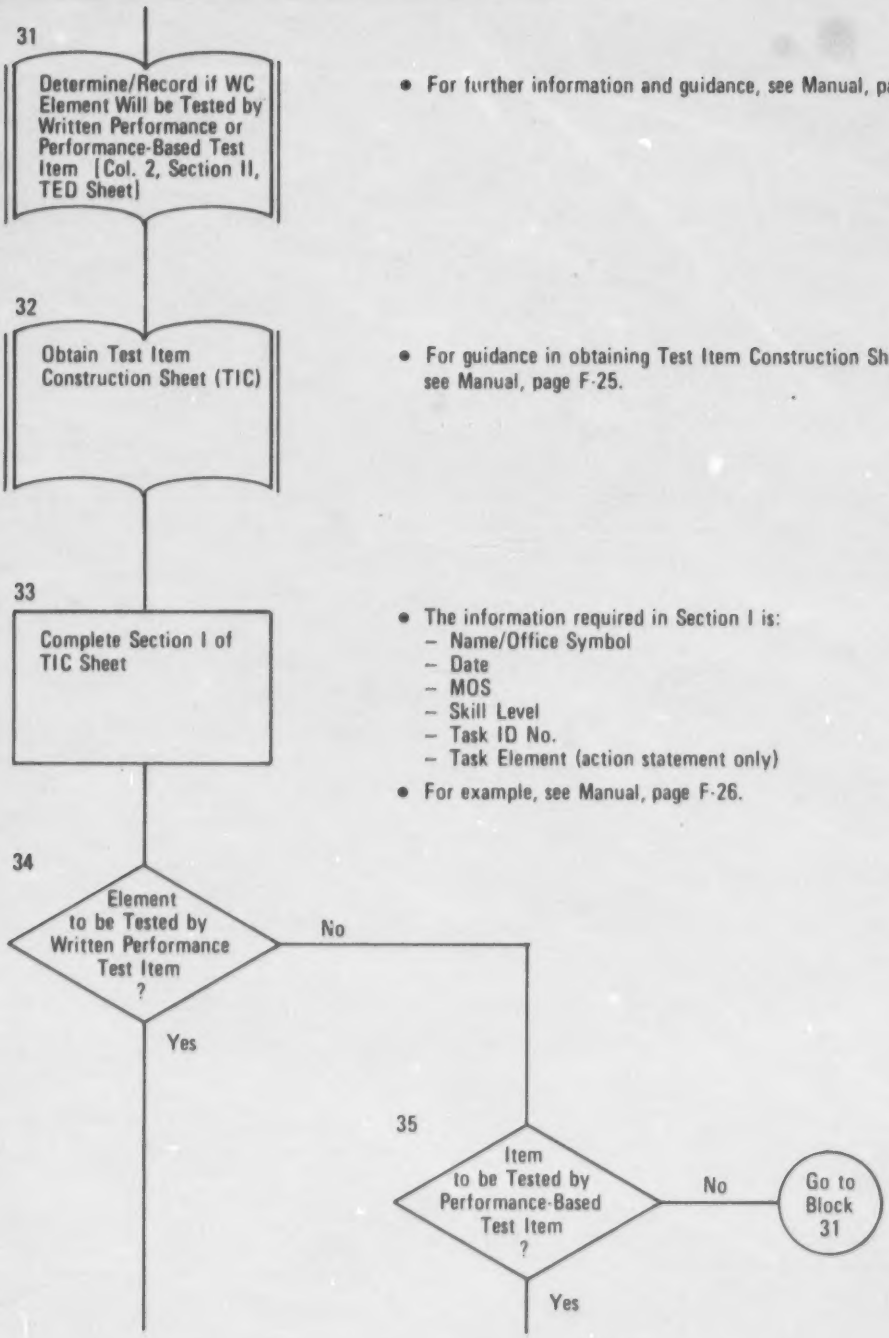
- For further information and guidance, see Manual, page F-16.


21
Have Too Many Tasks Been Selected for Testing ?
Yes
No
22
Reconsider Tasks With Low Priority for Testing
23
Select First/Next TED Sheet
24
Select/Record Task Elements to be Included in Testing [Col. 1, Section II, TED Sheet]
25
Determine/Record Component to Which Task Element Should be Assigned [Col. 2, Section II, TED Sheet]

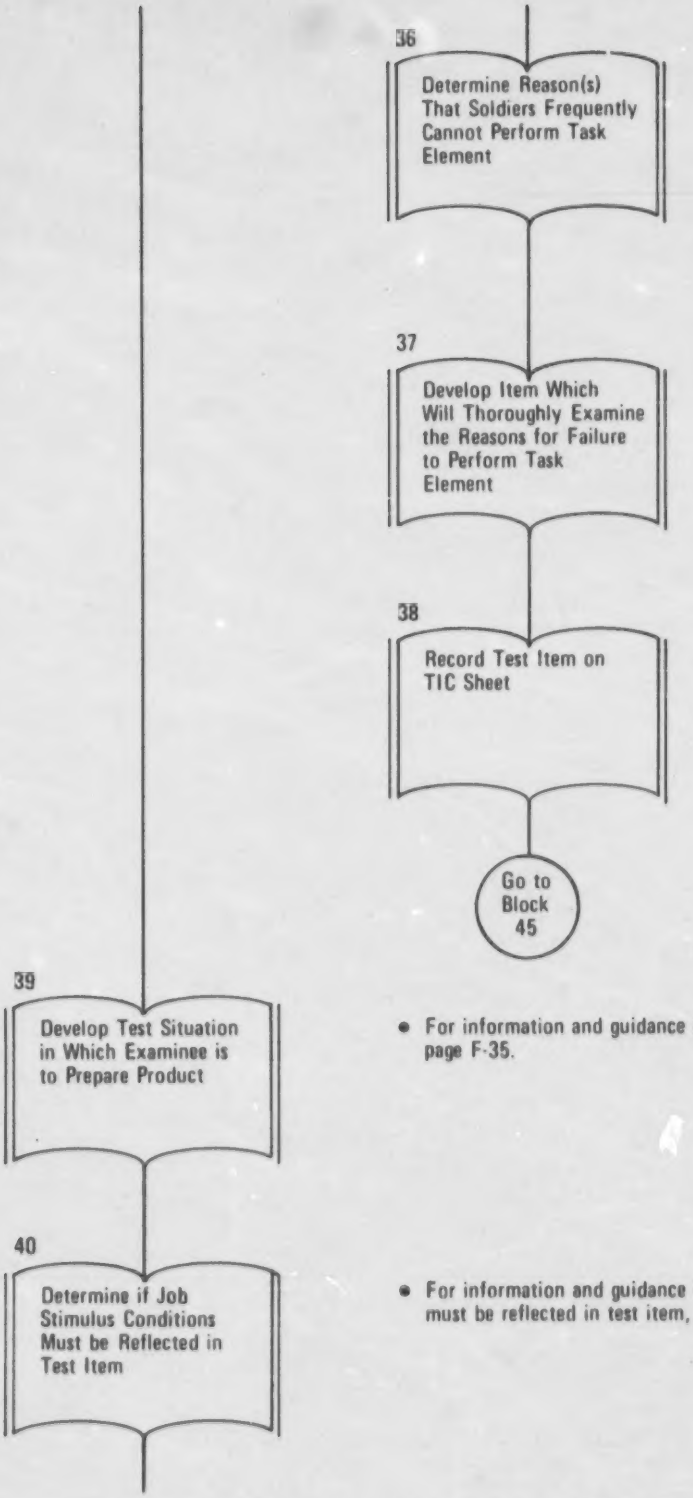
- For example, see Manual, page F-17.

- There are the three following components to which a task element may be assigned:
  - HOC (Hands On Component)
  - PCC (Performance Certification Component)
  - WC (Written Component)
- For further information and guidance, see Manual, page F-18.


26
Have All TED Sheets Been Examined ?
No
Go to Block 23
Yes
27
Select First/Next TED Sheet
28
Examine First/Next Task Element
29
Is Element to be Tested as a HOC or PCC ?
Yes
No
30
Temporarily Disregard This Task Element
Go to Block 45


31
Determine/Record if WC Element Will be Tested by Written Performance or Performance-Based Test Item (Col. 2, Section II, TED Sheet)
32
Obtain Test Item Construction Sheet (TIC)
33
Complete Section I of TIC Sheet
34
Element to be Tested by Written Performance Test Item ?
No
Yes
35
Item to be Tested by Performance-Based Test Item ?
No
Go to Block 31
Yes

- For further information and guidance, see Manual, page F-23.
- For guidance in obtaining Test Item Construction Sheet (TIC), see Manual, page F-25.
- The information required in Section I is:
  - Name/Office Symbol
  - Date
  - MOS
  - Skill Level
  - Task ID No.
  - Task Element (action statement only)
- For example, see Manual, page F-26.


36
Determine Reason(s) That Soldiers Frequently Cannot Perform Task Element
37
Develop Item Which Will Thoroughly Examine the Reasons for Failure to Perform Task Element
38
Record Test Item on TIC Sheet
Go to Block 45
39
Develop Test Situation in Which Examinee is to Prepare Product
40
Determine if Job Stimulus Conditions Must be Reflected in Test Item

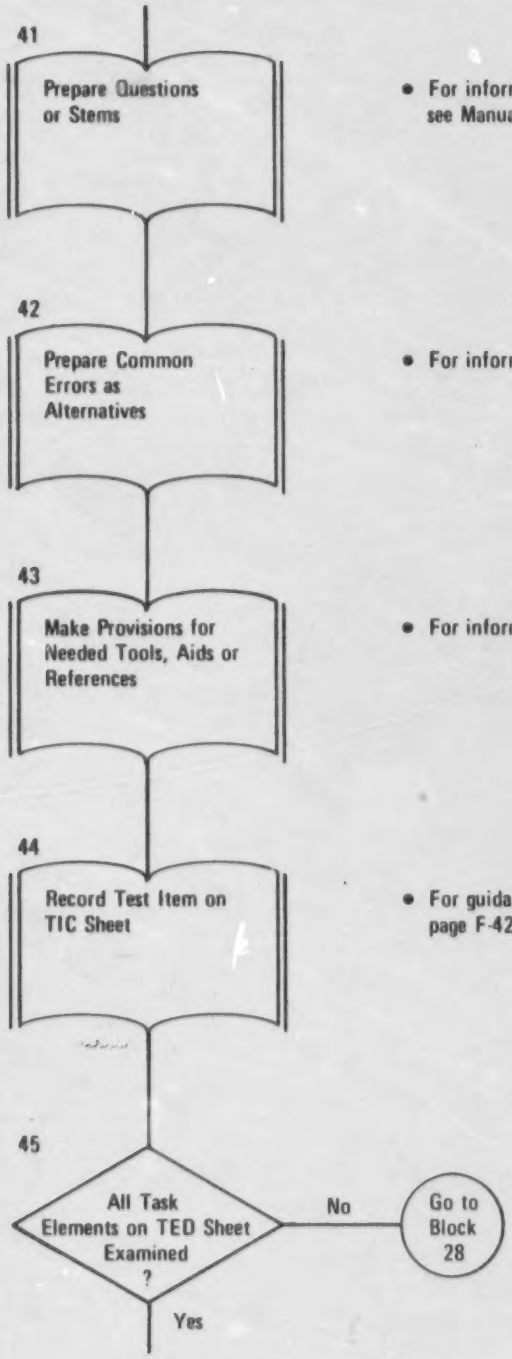
- There are four common reasons why soldiers cannot perform a task element. They are:
  - Don't know WHERE to perform
  - Don't know WHEN to perform
  - Don't know WHAT the product is
  - Don't know HOW to perform the procedure
- For further information and guidance, see Manual, page F-27.

- For guidance in preparing test item, see Manual, page F-29.

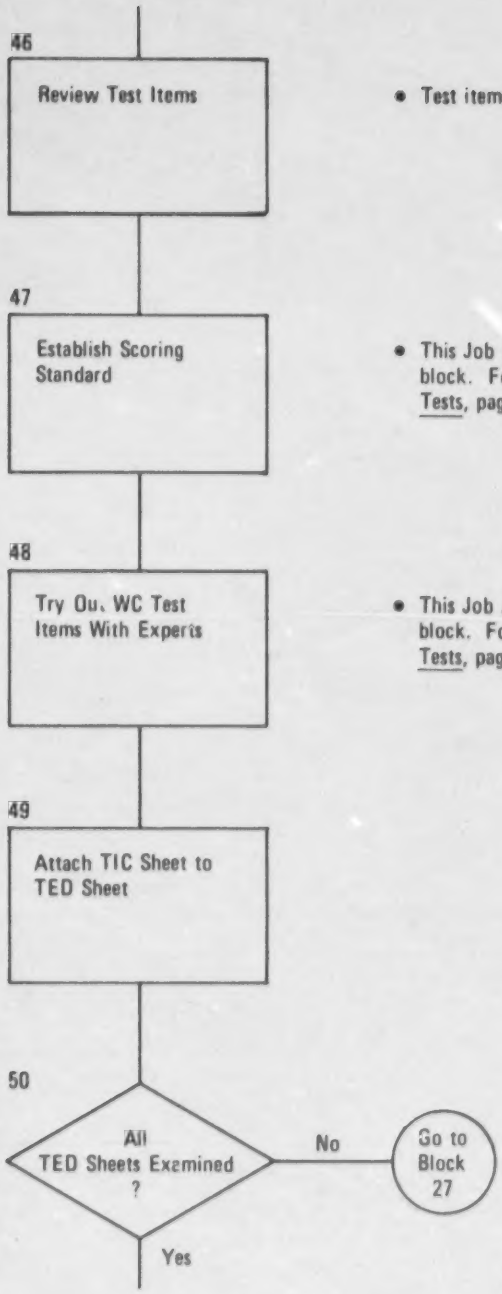
- For guidance and an example of a recorded test item, see Manual, page F-34.

- For information and guidance in developing test situation, see Manual, page F-35.

- For information and guidance in determining if job stimulus conditions must be reflected in test item, see Manual, page F-37.



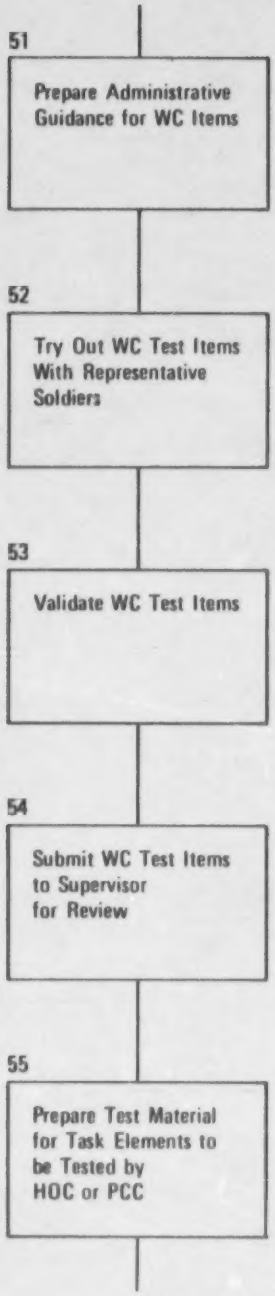
- For information and guidance in preparing questions or stems, see Manual, page F-38.
- For information and guidance, see Manual, page F-39.
- For information and guidance, see Manual, page F-40.
- For guidance and an example of a recorded test item, see Manual, page F-42.



- Test items are reviewed for completeness and accuracy.

- This Job Aid does not presently provide guidance for completing this block. For guidance see, Guidelines for Development of Skill Qualification Tests, page 159.

- This Job Aid does not presently provide guidance for completing this block. For guidance see, Guidelines for Development of Skill Qualification Tests, pages 163-169.

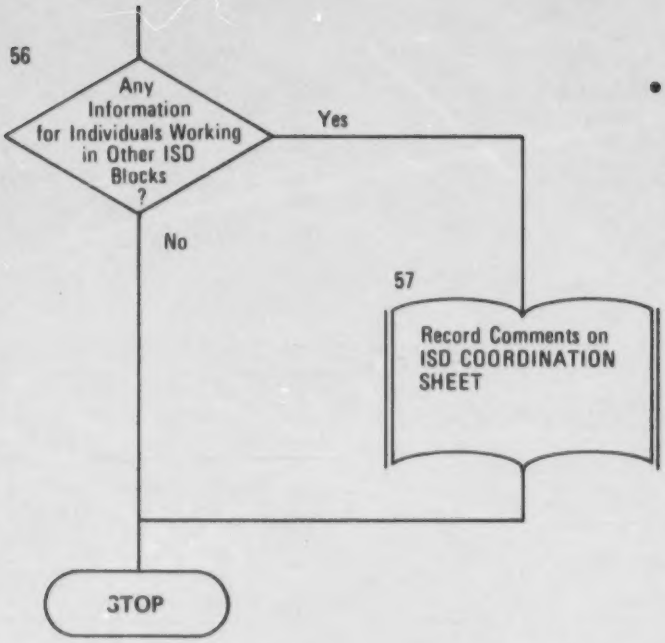

51
Prepare Administrative Guidance for WC Items
52
Try Out WC Test Items With Representative Soldiers
53
Validate WC Test Items
54
Submit WC Test Items to Supervisor for Review
55
Prepare Test Material for Task Elements to be Tested by HOC or PCC

- This Job Aid does not presently provide guidance for completing this block. For guidance see, Guidelines for Development of Skill Qualification Tests, pages 171-178.

- This Job Aid does not presently provide guidance for completing this block. For guidance see, Guidelines for Development of Skill Qualification Tests, pages 180-181.

- This Job Aid does not presently provide guidance for completing this block. For guidance see, Guidelines for Development of Skill Qualification Tests, pages 182-212.

- This Job Aid does not presently provide guidance for completing this block. For guidance see, Guidelines for Development of Skill Qualification Tests, pages 38-125.



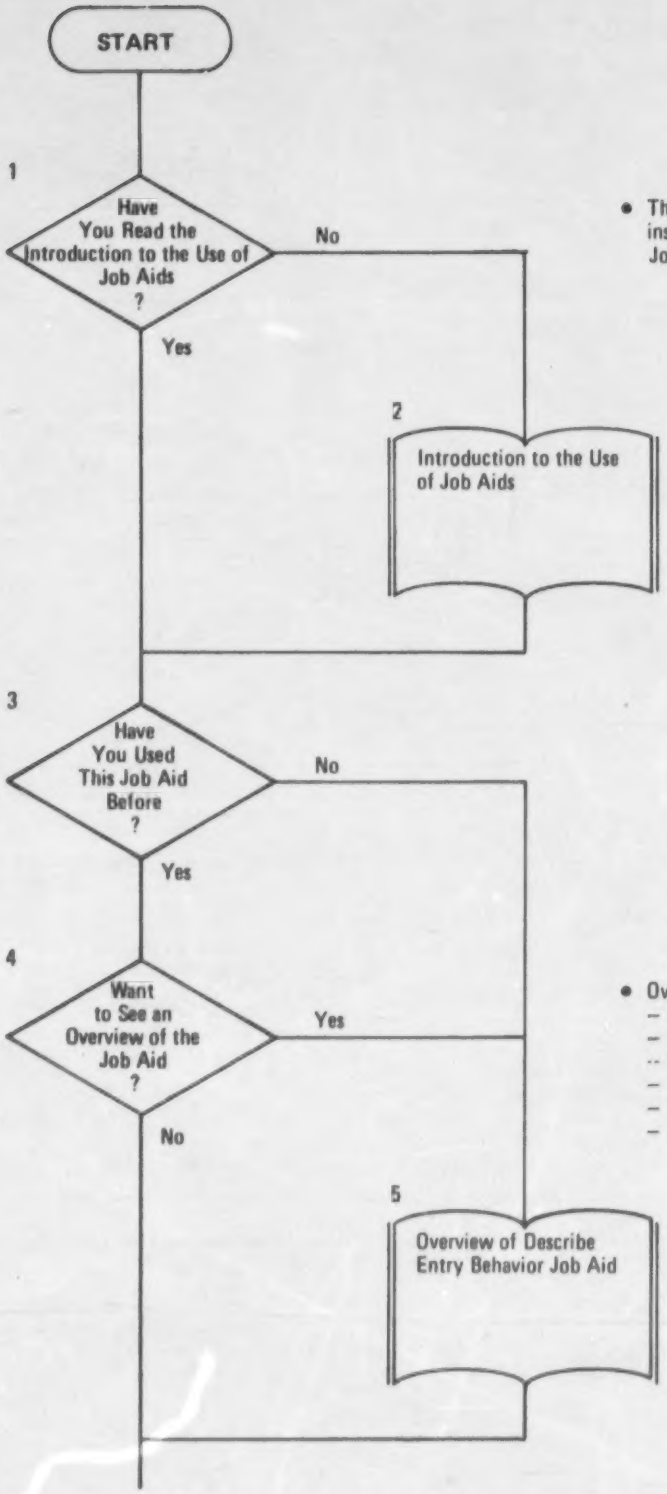
- During the process of developing test items information may have been obtained that would be useful to persons who performed activities that fed into this block. Similarly, information may have been obtained that would be useful to persons who will be engaged in Instructional Systems Development steps that follow this one.

- Comments are recorded and submitted to appropriate persons.
- For further guidance, see Manual, page F-49.

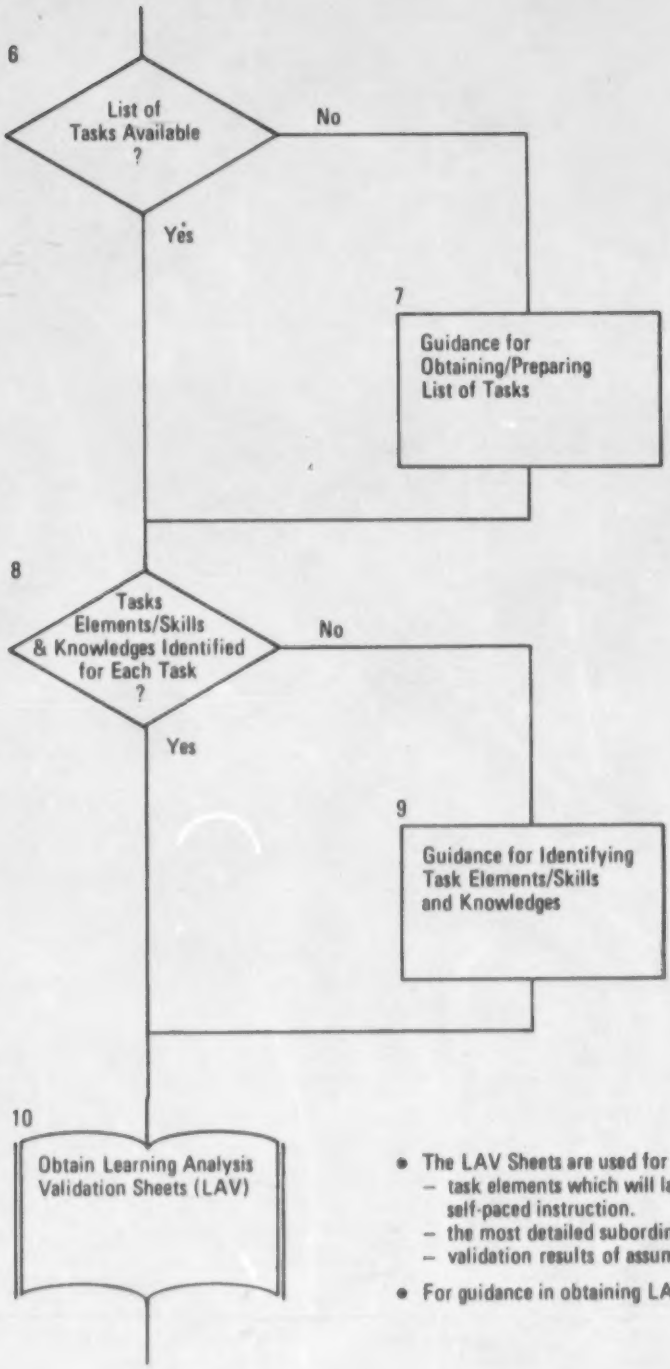
JOB AIDS:
DESCRIPTIVE AUTHORING FLOWCHARTS

ISD II.3 Describe Entry Behavior

This is the 7th in a series of ISD Job Aids for use in instructional design and development. This volume will direct you to specific guidance, examples, and references provided in the supplementary manual "Job Aid for Describing Entry Behavior ISD II.3." If you do not have the supplementary manual, request it from your supervisor.



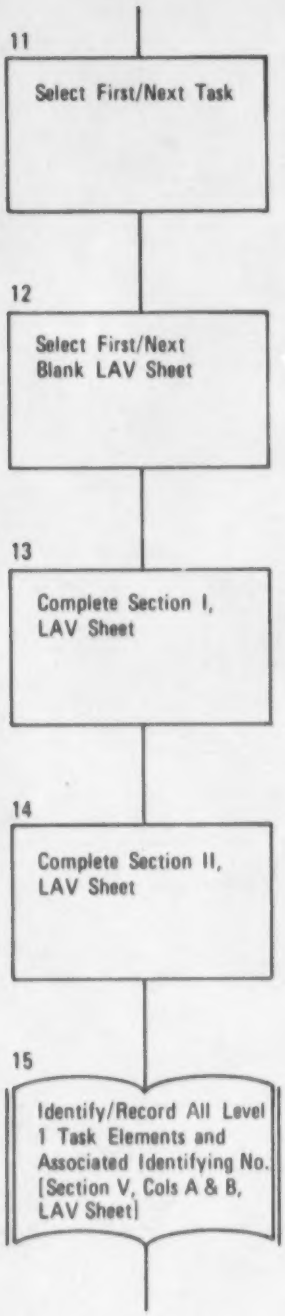
- This introduction provides the user with instruction on the basic structure of the Job Aids and guidance for their use.
- Refer to Introduction.
- Overview includes:
  - Goal
  - Objectives
  - Products
  - Major steps in process
  - Worksheets used
  - Descriptive Flowchart
- For detailed overview see Manual, page G-4.



- A list of tasks should be available as output from ISD I.2, Conduct Task Analysis.
- If a list is not available, request it from the person responsible for performing the task analysis in ISD I.2.
- When list has been obtained, return to Descriptive Authoring Flowchart II.3, Describe Entry Behavior, Block 6.

- Task elements/skills and knowledges should be available as output from ISD II.1, Develop Objectives.
- If not available, request them from the person responsible for performing the learning analysis.
- When task elements/skills & knowledges have been obtained for each task, return to Descriptive Authoring Flowchart, II.3, Describe Entry Behavior, Block 8.

- The LAV Sheets are used for recording:
  - task elements which will later be used to identify pre-test items for use in self-paced instruction.
  - the most detailed subordinate task elements for which training is required.
  - validation results of assumed entry level skills & knowledges.
- For guidance in obtaining LAV Sheets, see Manual, page G-9.

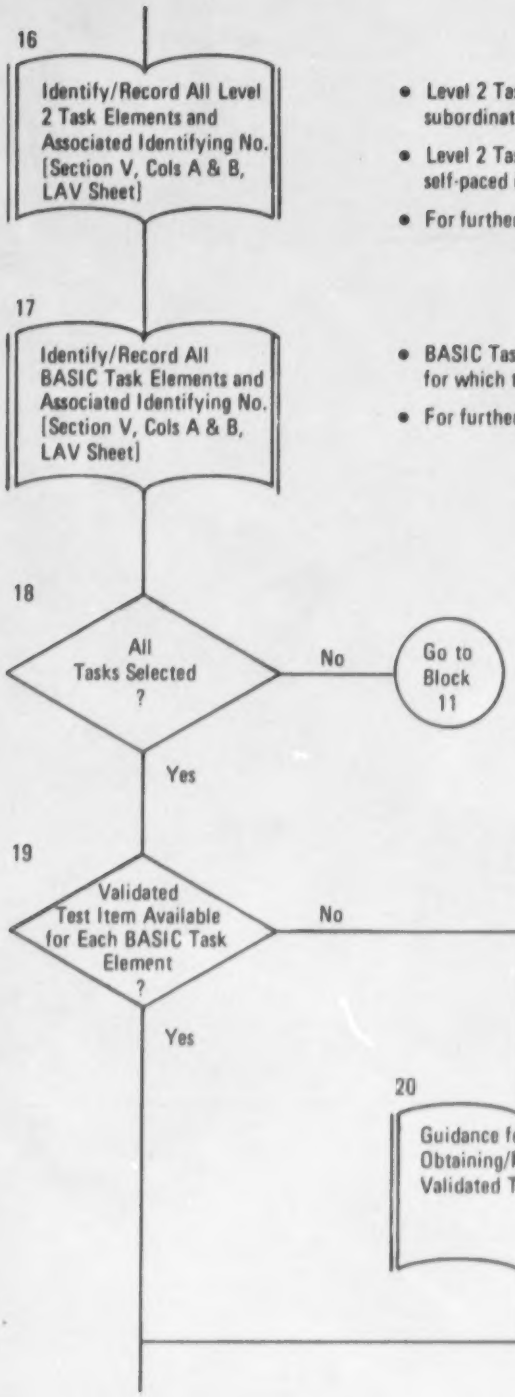

11
Select First/Next Task
12
Select First/Next Blank LAV Sheet
13
Complete Section I, LAV Sheet
14
Complete Section II, LAV Sheet
15
Identify/Record All Level 1 Task Elements and Associated Identifying No. [Section V, Cols A & B, LAV Sheet]

- This block begins the process of recording information needed to validate the learning analyses performed in ISD, II.1, Develop Objectives.

- Information required in Section I:
  - Name/Office Symbol
  - Date
  - Course
  - MOS
  - Skill Level
- For example, see Manual, page G-12.

- Information required in Section II:
  - Task ID No.
  - Task
- For example, see Manual, page G-13.

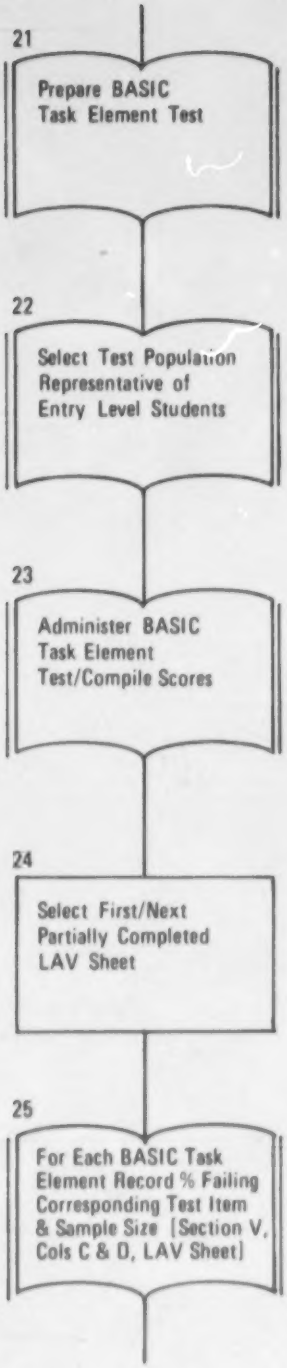
- Level 1 Task Elements are the first level of task breakdown into subordinate task elements.
- Level 1 Task Elements will be used to identify test items for use in self-paced instruction.
- For further guidance, see Manual, page G-14.


16
Identify/Record All Level 2 Task Elements and Associated Identifying No. [Section V, Cols A & B, LAV Sheet]
17
Identify/Record All BASIC Task Elements and Associated Identifying No. [Section V, Cols A & B, LAV Sheet]
18
All Tasks Selected ?
No
Go to Block 11
Yes
19
Validated Test Item Available for Each BASIC Task Element ?
No
Yes
20
Guidance for Obtaining/Preparing Validated Test Items

- Level 2 Task Elements are the second level of task breakdown into subordinate task elements.
- Level 2 Task Elements will also be used to identify test items for use in self-paced instruction.
- For further guidance, see Manual, page G-18.

- BASIC Task Elements are defined as being the most subordinate task element for which training is required.
- For further guidance, see Manual, page G-21.

- Validated task items should be available as output from ISD II.2, Develop Tests.
- If they are not available, request them from the person responsible for developing test items.
- When validated test items have been obtained, return to Descriptive Authoring Flowchart, II.3, Block 19.


21
Prepare BASIC Task Element Test
22
Select Test Population Representative of Entry Level Students
23
Administer BASIC Task Element Test/Compile Scores
24
Select First/Next Partially Completed LAV Sheet
25
For Each BASIC Task Element Record % Failing Corresponding Test Item & Sample Size [Section V, Cols C & D, LAV Sheet]

- The BASIC Task Element Test is comprised of test items derived for all BASIC Task Elements. The test may be a written test, a performance test, or a combination of the two.
- For further information, see Manual, page G-27.

- For further information, see Manual, page G-28.

- For further information, see Manual, page G-30.

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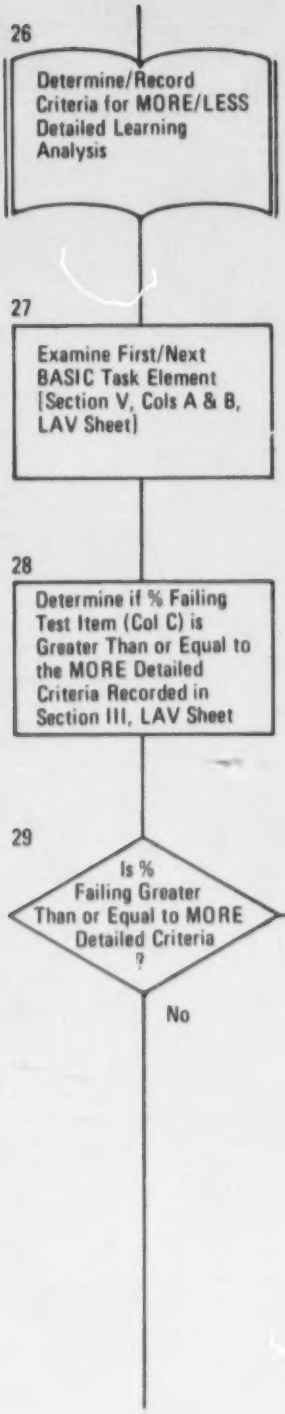
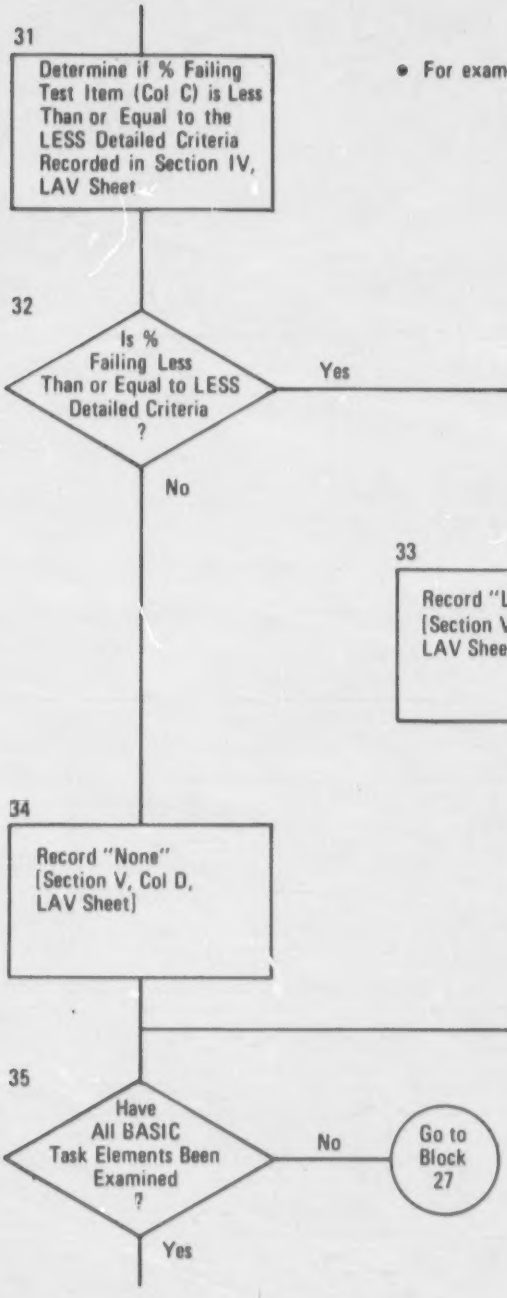
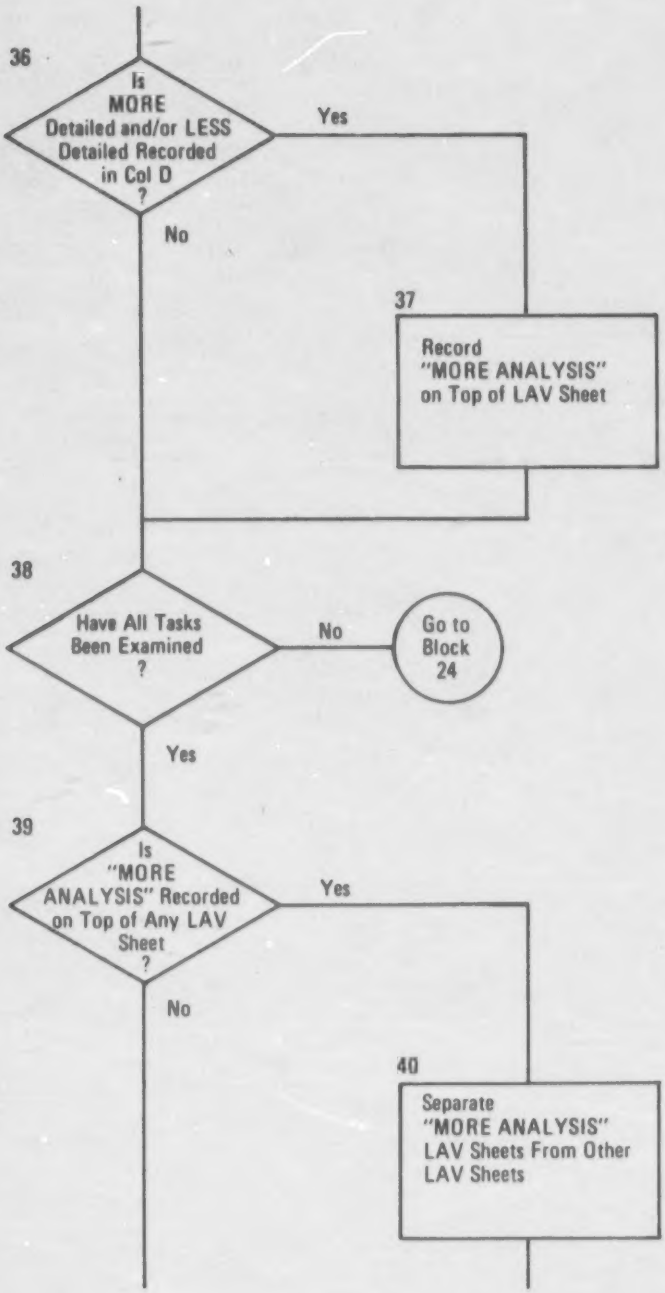

26
Determine/Record Criteria for MORE/LESS Detailed Learning Analysis
27
Examine First/Next BASIC Task Element [Section V, Cols A & B, LAV Sheet]
28
Determine if % Failing Test Item (Col C) is Greater Than or Equal to the MORE Detailed Criteria Recorded in Section III, LAV Sheet
29
Is % Failing Greater Than or Equal to MORE Detailed Criteria ?
Yes
No
30
Record "MORE Detailed" [Section V, Col D, LAV Sheet]
Go to Block 35

- The criteria for MORE/LESS detailed learning analysis will be used in determining if the learning analysis for a task should include more, or less, subordinate task elements.
- For further guidance, see Manual, page G-31.
- For example, see Manual, page G-36.
- For example, see Manual, page G-37.

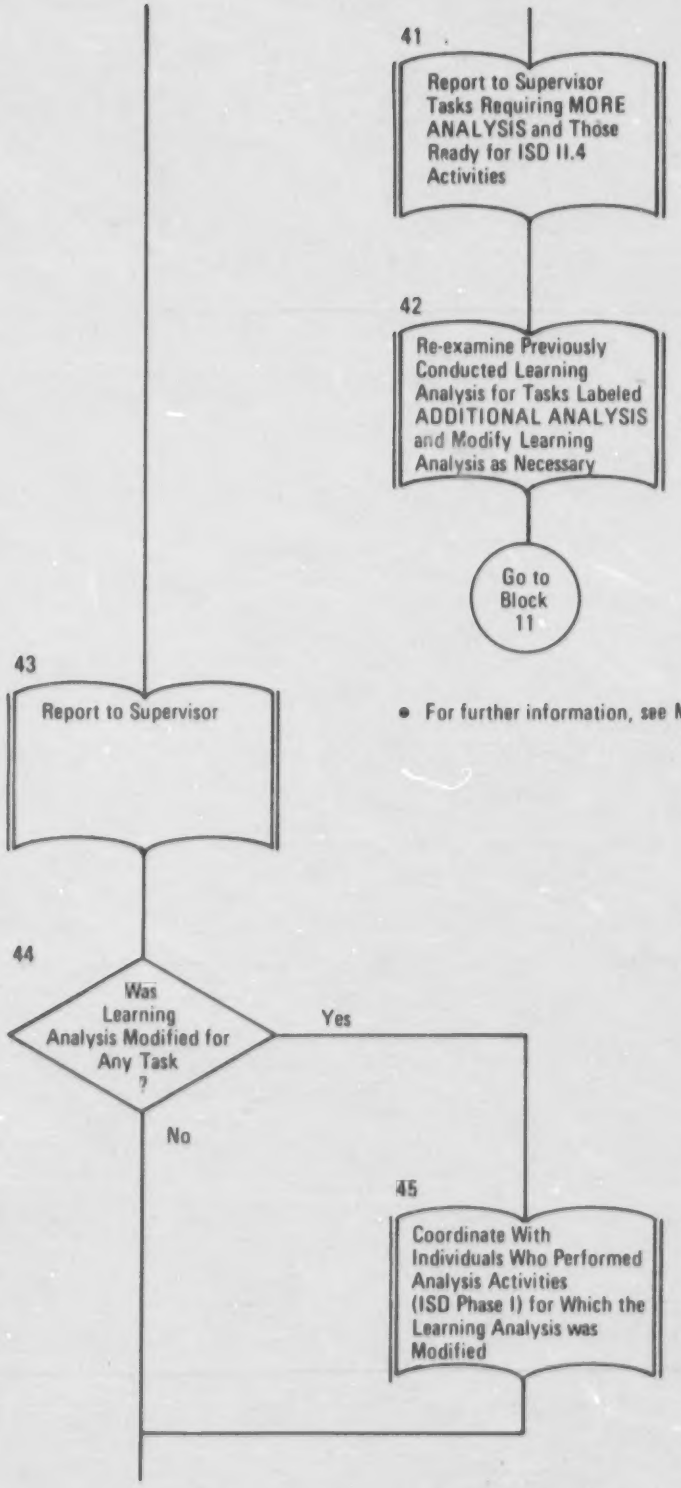

31
Determine if % Failing Test Item (Col C) is Less Than or Equal to the LESS Detailed Criteria Recorded in Section IV, LAV Sheet
32
Is % Failing Less Than or Equal to LESS Detailed Criteria ?
Yes
No
33
Record "LESS Detailed" [Section V, Col D, LAV Sheet]
34
Record "None" [Section V, Col D, LAV Sheet]
35
Have All BASIC Task Elements Been Examined ?
No
Go to Block 27
Yes

- For example, see Manual, page G-38.
- For example, see Manual, page G-39.
- For example, see Manual, page G-40.

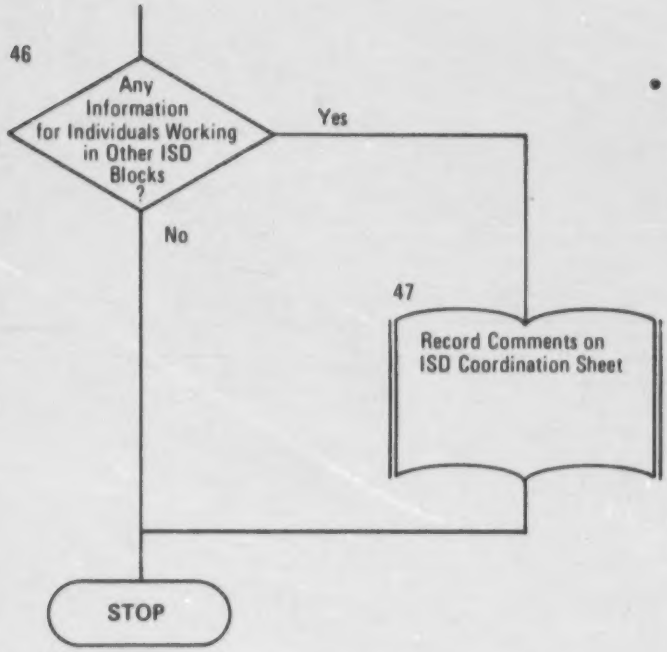


- For example, see Manual, page G-42.

- LAV Sheets are separated into two piles:
  - Those task for which additional learning analysis should be considered (MORE ANALYSIS recorded on top of LAV Sheet)
  - Those tasks for which no further learning analysis is needed.


41
Report to Supervisor Tasks Requiring MORE ANALYSIS and Those Ready for ISD II.4 Activities
42
Re-examine Previously Conducted Learning Analysis for Tasks Labeled ADDITIONAL ANALYSIS and Modify Learning Analysis as Necessary
Go to Block 11
43
Report to Supervisor
44
Was Learning Analysis Modified for Any Task ?
Yes
No
45
Coordinate With Individuals Who Performed Analysis Activities (ISD Phase I) for Which the Learning Analysis was Modified

- For further information, see Manual, page G-45.
- For further information, see Manual, page G-46.
- For further information, see Manual, page G-52.
- Modification of the learning analysis may require changes in the products from previous ISD blocks.
- For further information, see Manual, page G-53.



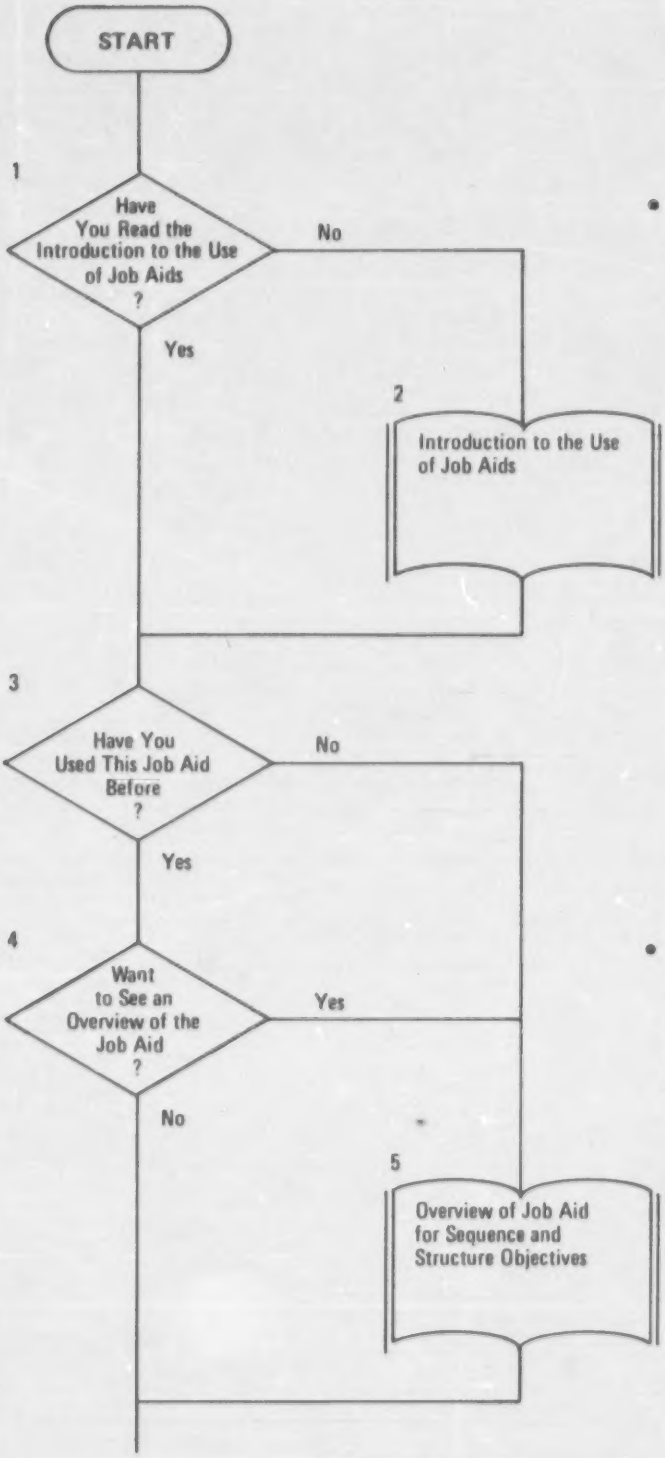
- During the learning analysis validation process information may have been obtained that would be useful to persons who will be engaged in the ISD steps that follow this one.

- Comments are recorded and submitted to appropriate persons.
- For further guidance, see Manual, page G-54.

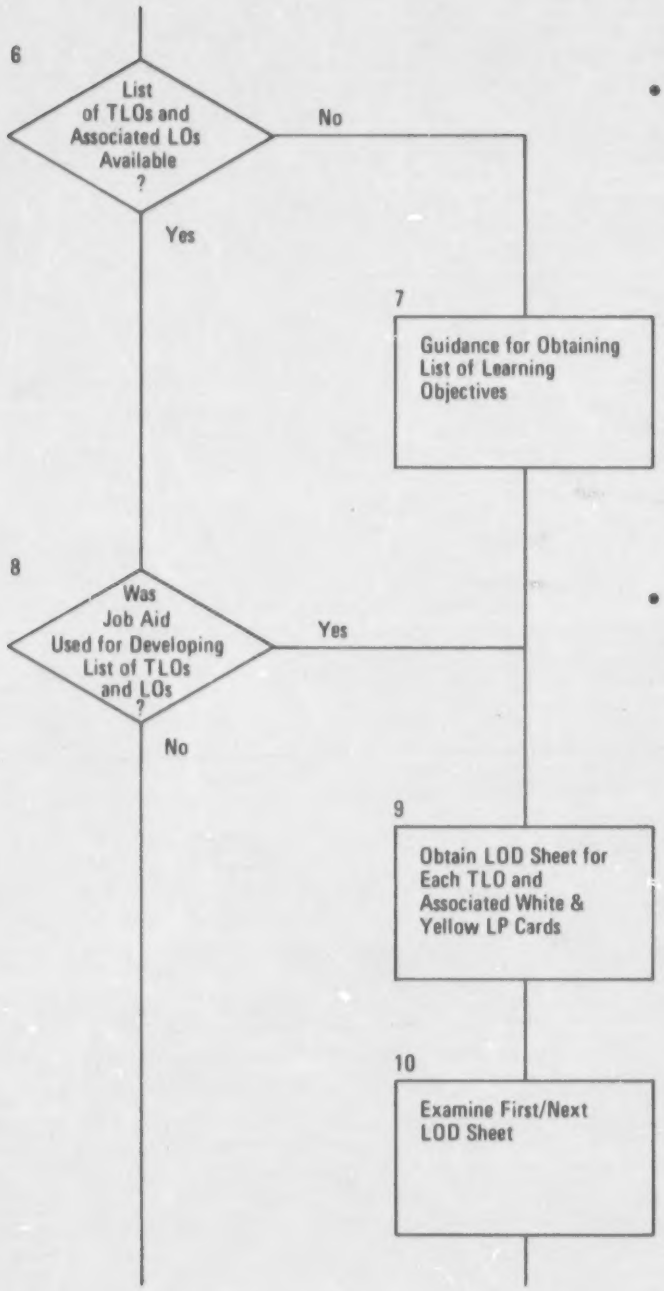
JOB AIDS:
DESCRIPTIVE AUTHORING FLOWCHARTS

ISD II.4 Determine Sequence and Structure

This is the 8th in a series of ISD Job Aids for use in instructional design and development. This volume will direct you to specific guidance, examples, and references provided in the supplementary manual "Job Aid for Determining Sequence and Structure ISD II.4." If you do not have the supplementary manual, request it from your supervisor.



- This introduction provides the user with instruction on the basic structure of the Job Aids and Guidance for their use.
- Refer to Introduction.
- Overview includes:
  - Goal
  - Objectives
  - Products
  - Major steps in process
  - Worksheets used
  - Descriptive flowchart
- For detailed overview, see Manual, page H-4.

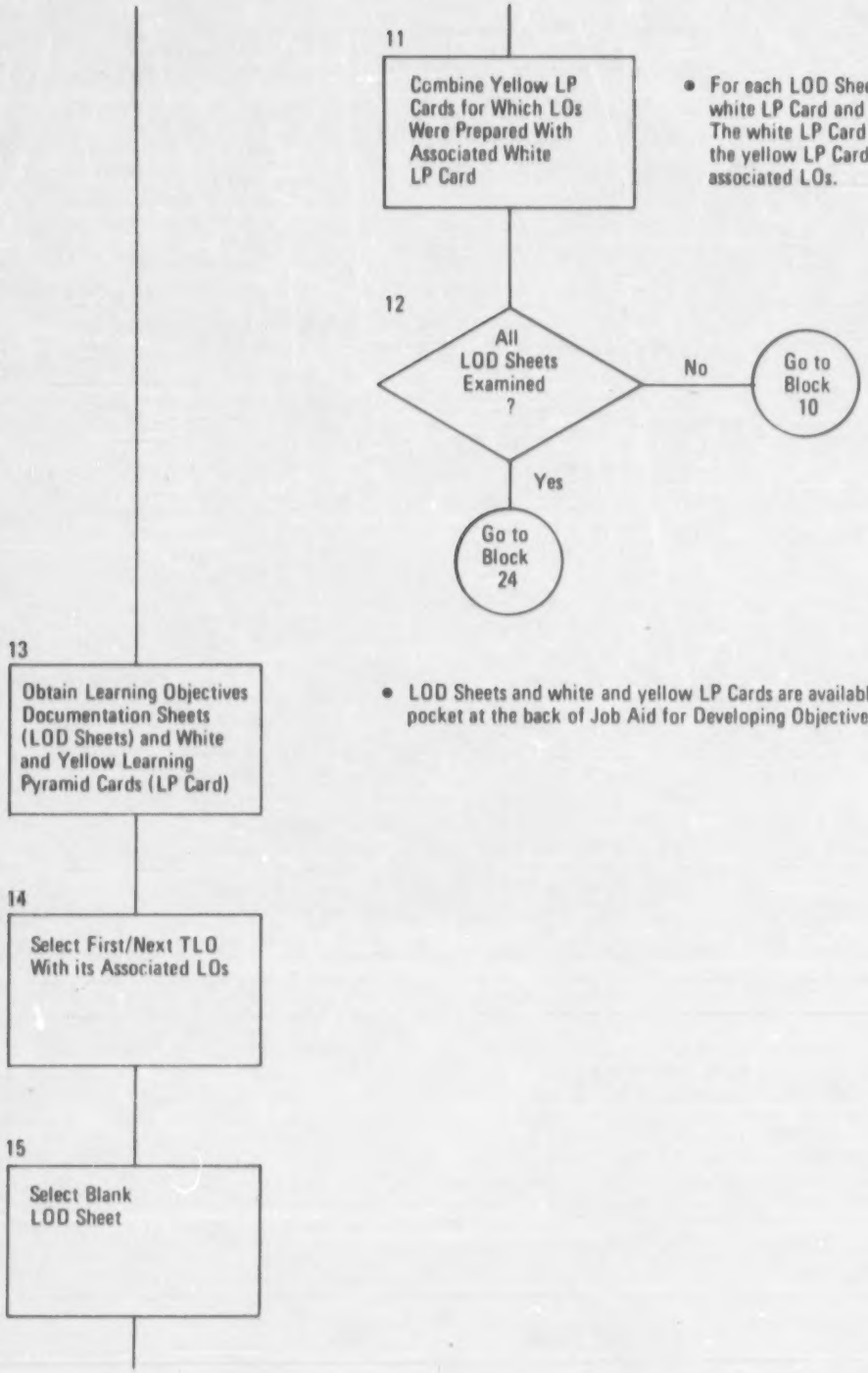


- Terminal Learning Objectives (TLOs) and Learning Objectives (LOs) should be available as output from ISD II.1, Develop Objectives.

- If TLOs and LOs are not available, request them from the person responsible for developing objectives in ISD II.1.
- When TLOs and LOs have been obtained, return to Descriptive Authoring Flowchart II.4, Determine Sequence & Structure, Block 6.

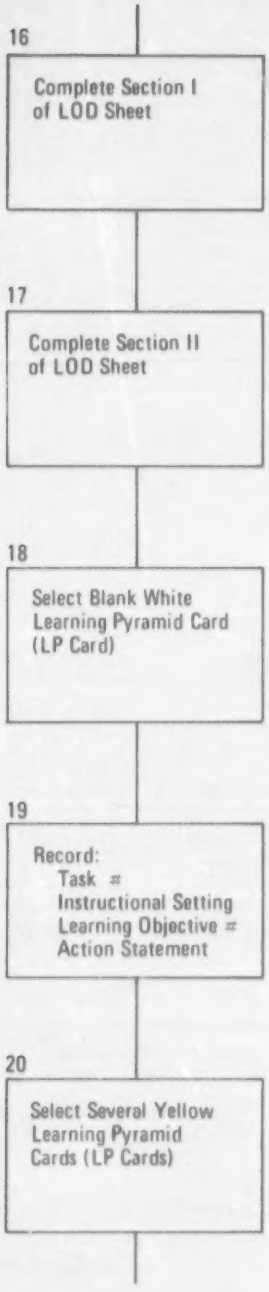
- The person responsible for developing objectives, ISD II.1, will know if Job Aids were used for developing the list of TLOs and LOs.

- If the Job Aid was used for developing TLOs and LOs, Learning Objectives Documentation Sheets (LOD Sheets) and white and yellow Learning Pyramid Cards (LP Cards) will be available as output.


11
Combine Yellow LP Cards for Which LOs Were Prepared With Associated White LP Card
12
All LOD Sheets Examined ?
No
Go to Block 10
Yes
Go to Block 24
13
Obtain Learning Objectives Documentation Sheets (LOD Sheets) and White and Yellow Learning Pyramid Cards (LP Card)
14
Select First/Next TLO With its Associated LOs
15
Select Blank LOD Sheet

- For each LOD Sheet there should be one white LP Card and several yellow LP Cards. The white LP Card represents the TLO and the yellow LP Card represents the associated LOs.

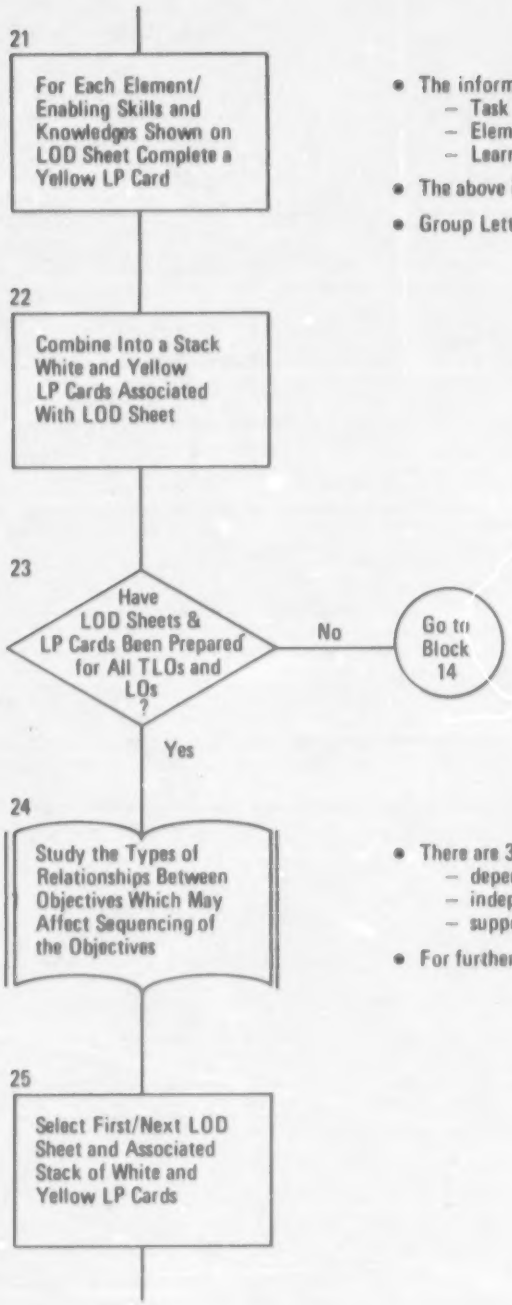
- LOD Sheets and white and yellow LP Cards are available for duplication in the pocket at the back of Job Aid for Developing Objectives Manual.



- For guidance see Block 12, page E-5, Descriptive Authoring Flowcharts, ISD II.1 Develop Objectives.

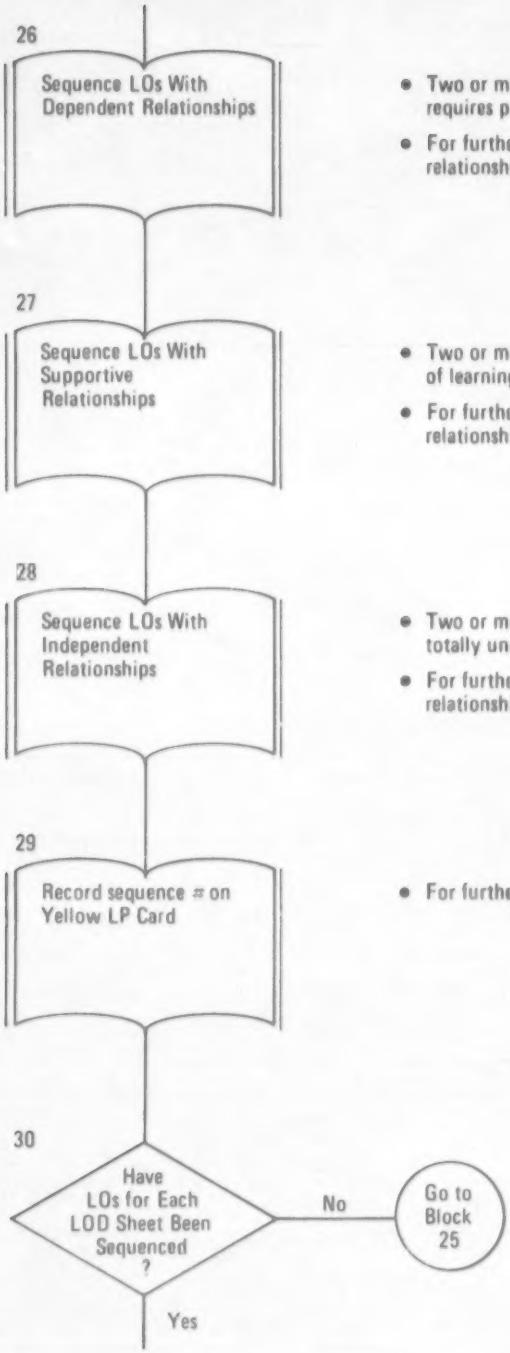
- For guidance see Blocks 14-17, pages E-5 & E-6, Descriptive Authoring Flowcharts, ISD II.1 Develop Objectives.

- Guidance is available in Block 19, page E-6, Descriptive Authoring Flowcharts, ISD II.1 Develop Objectives.


21
For Each Element/ Enabling Skills and Knowledges Shown on LOD Sheet Complete a Yellow LP Card
22
Combine Into a Stack White and Yellow LP Cards Associated With LOD Sheet
23
Have LOD Sheets & LP Cards Been Prepared for All TLOs and LOs ?
No
Go to Block 14
Yes
24
Study the Types of Relationships Between Objectives Which May Affect Sequencing of the Objectives
25
Select First/Next LOD Sheet and Associated Stack of White and Yellow LP Cards

- The information required on the yellow LP Card is:
  - Task #
  - Element/Enabling S&K #
  - Learning Category/Subcategory
  - Learning Objective #
  - Action Statement
- The above information is available from the LOD Sheet.
- Group Letter and Sequence # is left blank at this point.

- There are 3 types of relationships:
  - dependent
  - independent
  - supportive
- For further explanation, see Manual, page H-14.

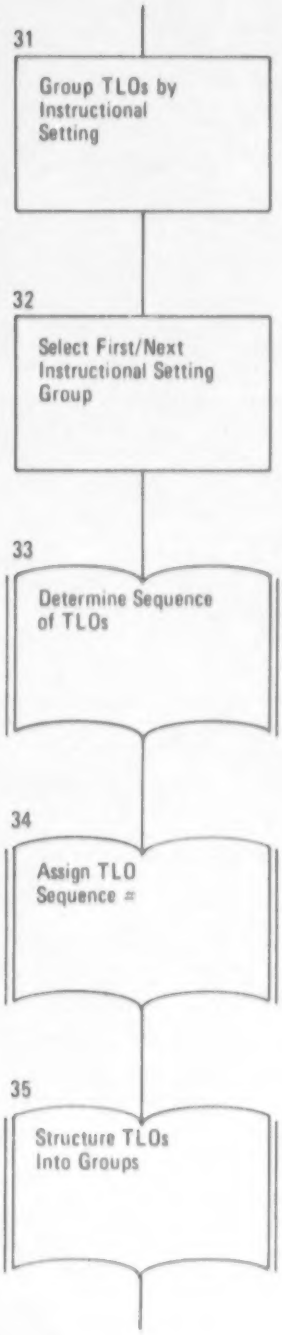


- Two or more objectives may have a dependent relationship: mastery of one requires prior mastery of the other.
- For further guidance on how to sequence objectives with dependent relationships, see Manual, page H-17.

- Two or more objectives may have a supportive relationship: some transfer of learning takes place from one LO to the other.
- For further guidance on how to sequence objectives with supportive relationships, see Manual, page H-20.

- Two or more objectives may have an independent relationship: they are totally unrelated to each other.
- For further guidance on how to sequence objectives with independent relationships, see Manual, page H-21.

- For further guidance, see Manual, page H-23.

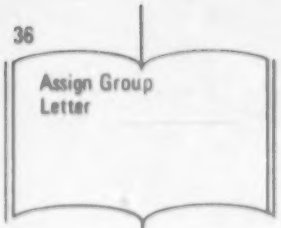


- LOD Sheets and associated LP Cards are sorted into three instructional setting stacks:
  - institution
  - SOJT
  - self study
- The instructional setting is shown on the LOD Sheets and LP Cards.

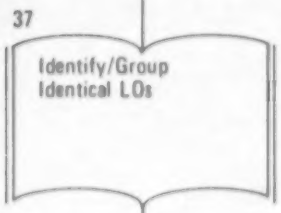
- Cards on which TLO action statements have been recorded are arranged to graphically show the relationships of all TLOs covered in the course under development for a particular instructional setting.
- For further guidance on determining sequence of TLOs, see Manual, page H-26.

- For further guidance, see Manual, page H-27.

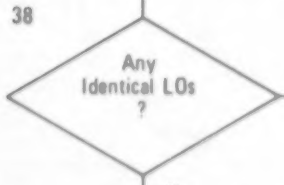
- Grouping of objectives provides organized, manageable blocks of contact.
- For further guidance on how to group objectives, see Manual, page H-30.



- For further guidance, see Manual, page H-32.



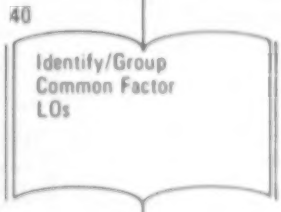
- Some tasks may contain LOs for elements or skills and knowledges that are the same as for other tasks. In this step these LOs are identified and grouped together.
- For further guidance, see Manual, page H-36.



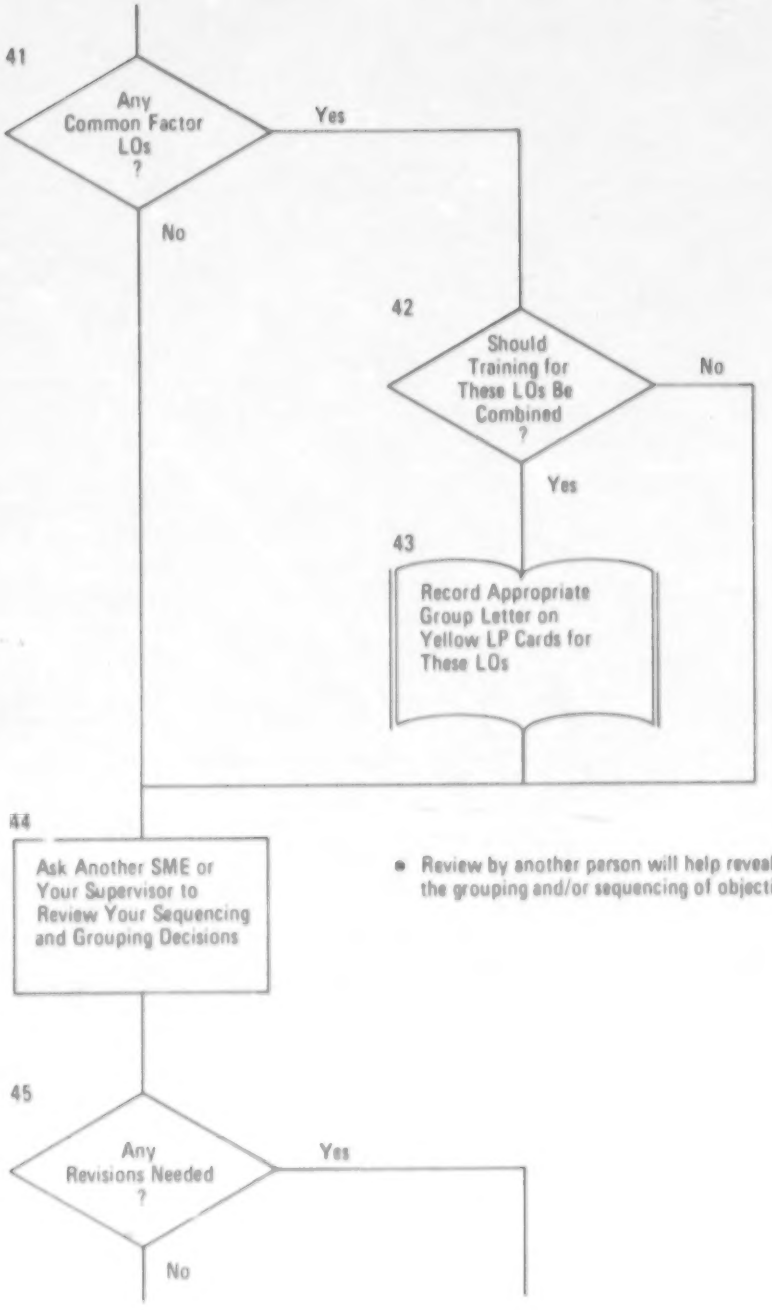
Yes

No

- For further guidance, see Manual, page H-38.

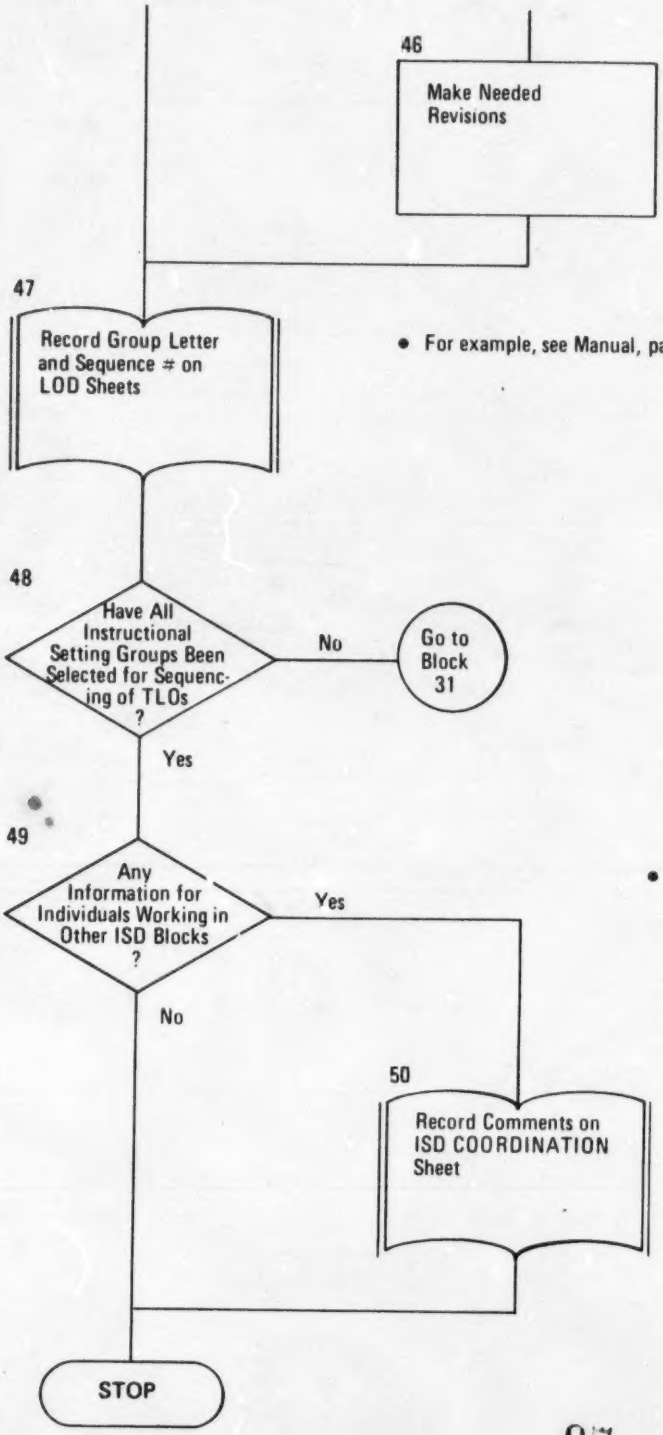


- Common-factor learning objectives are LOs that have identical action words and similar objects of the action in the learning objective statement.
- For further guidance on how to sequence common-factor objectives, see Manual, page H-40.



- For further guidance, see Manual, page H-42.

- Review by another person will help reveal any misclassifications in the the grouping and/or sequencing of objectives.



- For example, see Manual, page H-45.

- During the sequencing and structuring process information may have been obtained that would be useful to persons who performed activities that led into this block. Similarly, information may have been obtained that would be useful to persons who will be engaged in Instructional Systems Development steps that follow this one.

- Comments are recorded and submitted to appropriate persons.
- For further guidance, see Manual, page H-47.